

Railway Age

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THE PUBLIC IS INTERESTED

OVER 1,700,000 people have inspected and passed through the Union Pacific streamlined train. Many times that number have viewed it from outside.

The public has not forgotten the railways. It is willing and anxious to see what they have to offer.

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Unsound Economic Policies Necessitate Higher Rates

It is impossible to adopt some major unsound economic policies without apparently necessitating and justifying others. The adoption of one unsound economic policy after another has forced the railways to decide again to seek an advance in freight rates. The *Railway Age* has never believed that measures intended to repeal the law of supply and demand helped to maintain prosperity or to restore it, but our old-fashioned economics have been disregarded throughout the last decade, and especially during the last year. We think this has caused the depression and protracted it. No industry can, however, safely disregard the effects upon itself of uneconomic policies, whether adopted in the supposed interest of the public, its employees or other industries. Uneconomic increases in the costs of the railways force them to find, if possible, the means of paying their increased costs.

Volume of Traffic and Rates

Among the economic policies the adoption of which has forced the railways to seek higher rates are the following:

1. Government subsidization of, and failure to regulate, water and highway carriers.—For the railways to be able to make the lowest possible rates, it is essential for them to be able to secure the lowest possible unit costs of operation. Low unit costs of operation require a volume of traffic proportionate to their capacity per mile of line. During almost four-fifths of their history there occurred an increase in the volume of their traffic which enabled them, in spite of advances in wages and prices of materials, steadily to reduce their rates. In the decade ending with 1907 the volume of their freight business per mile of line increased 100 per cent. During the decade ending with 1917, it increased 50 per cent. It was 520,000 ton-miles per mile of line in 1897; 1,052,000 ton-miles in 1907; and 1,538,000 ton-miles in 1917. In the nine years ending with 1926, in which year it reached its maximum, it increased less than 13 per cent. The marked decline

in its growth during this period, its small decline during 1927, 1928 and 1929, and its terrific decline during the depression, have been largely due to the diversion of traffic to other carriers. In 1932 and 1933 the volume of freight traffic per mile of line was only about 910,000 ton-miles, or 48 per cent less than in 1926, and the smallest since 1905.

Railway Rates 22 Per Cent Lower than in 1921

2. Reductions of rates.—In 1933 average railway revenue per ton-mile, which is the only available measure of the average freight rate charged, was 9.97 mills. This was 38.7 per cent higher than in 1913, but about 22 per cent lower than in 1921, 8 per cent lower than in 1926 and 7.3 per cent lower than in 1929. The decline in rates since 1921 has been partly due to the 10 per cent reduction made by the Interstate Commerce Commission in 1922, but also largely to efforts to meet the subsidized and unregulated competition of other carriers. This government-aided competition has not only reduced the volume of railway traffic, but the revenues derived from much of the traffic retained.

3. At the request of the Hoover administration the railways in 1930 increased their capital expenditures in the face of declining traffic and earnings. Also, at the request of the Hoover administration, they maintained wages throughout 1930 and 1931. These policies unduly expanded their facilities and deprived them of financial resources which they needed to weather the depression.

Advances in Prices, Wages and Pensions

4. Prices under NRA.—The National Recovery Administration adopted a year ago the policy of increasing wages and reducing hours of work in industry. This has caused increases of production costs and prices in the industries from which the railways buy equipment and supplies. The price of bituminous coal has increased 21 per cent and of petroleum products 63 per cent. The average price of iron and steel has increased

20 per cent. The price of lumber has increased 44 per cent.

5. Wages.—The railways agreed to restore one-fourth of the 10 per cent deduction from the basic wages of their employees on July 1, 1934, one-fourth on January 1, 1935, and the remaining one-half on April 1, 1935. This will make their average wage per hour after the last mentioned date practically the same as in 1930, when it was 67.8 cents, or 177 per cent more than in 1913, and about 7½ per cent more than in 1926, when the volume of their freight traffic was almost twice as great as it is now.

6. Pensions.—At its recent session Congress passed a law requiring each railway to pay an amount equal to 4 per cent of its pay roll into a fund to provide retirement pensions, not for its own employees, but for those of railways generally. This will cost, on the basis of the recent pay roll, about \$60,000,000 annually, and on the basis of the pay roll after the restoration of basic wages about \$66,000,000 annually. Prior to this legislation the railways were paying about \$33,000,000 annually in pensions. How much of an offset to the payments under the new pension legislation the pensions previously paid will afford, it is impossible now to say.

Choosing Between Economic Evils

The agreement to restore the basic wages in effect prior to 1932 was made by the railways largely because it was the policy of the national administration to raise wages, and because of apprehension lest a complete break with the labor unions would have serious consequences and perhaps result in government operation. All the other economic policies mentioned as having contributed toward forcing the railways to again ask for an advance in rates have been government policies, state and national. Government is supposed to represent the public and give effect to its wishes. The government policies followed have forced the railways to choose whether they will head straight into bankruptcy, retrench by reducing employment and purchases, rely upon an improvement in general business and consequent increase of traffic, or seek an advance in rates.

An advance in rates as a means of promoting business recovery is not economically desirable. But neither is general railroad bankruptcy. Neither is retrenchment in railway employment and purchases to avoid bankruptcy. The railways have been left no choice excepting between economic evils. The average wholesale price of all commodities was 17 per cent higher in May, 1934, than in May, 1933. A 10 per cent advance in freight rates would not, therefore, make freight rates as high in proportion to the prices of commodities as they were a year ago. An advance in rates seems to be the least of the economic evils among which the railways can choose.

Government Policies and Business

The state and national governments have available means to increase the volume of railway traffic and thereby make less necessary an advance in freight rates. One of these is the adoption of economic policies which

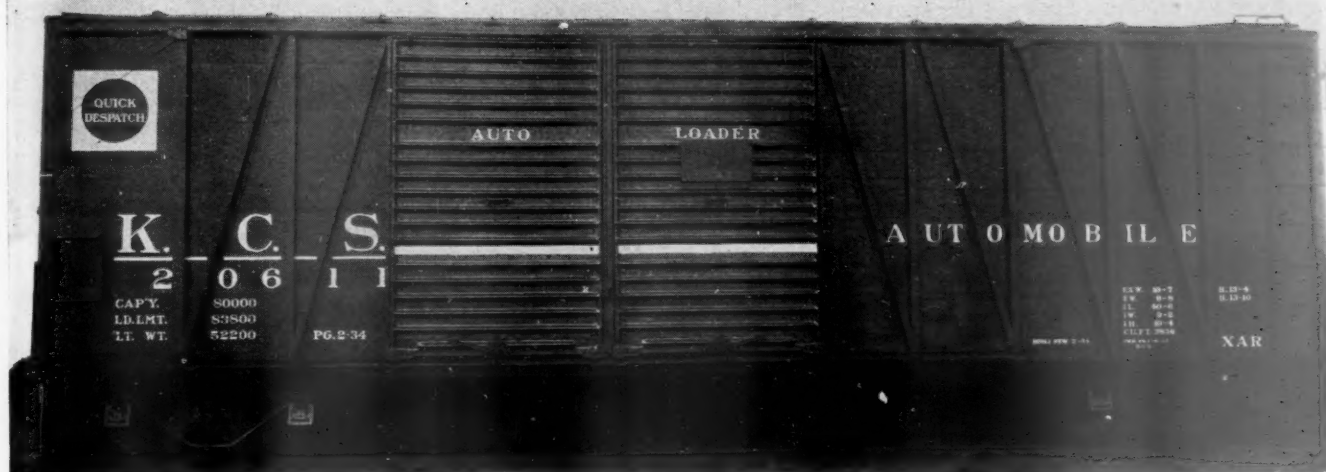
will stimulate instead of retard a revival of general business. Another is legislation by Congress and the state legislatures that would equalize the terms of competition between the railways and their subsidized and unregulated competitors. Restoration of the traffic that has been diverted from the railways by government-aided unfair competition would reduce their need of advances in rates much more than most persons realize.

Nothing could better demonstrate the unsoundness of the government economic policies that have been followed during the last year than the fact that the railways now find it necessary to seek an advance in rates. The bottom of the depression was reached two years ago, in July, 1932. In that month the net operating income of the railways was less than \$11,600,000. There then began an improvement in general business and traffic, and railway net operating income in October, 1932, was almost \$64,000,000, and in the last quarter of 1932 was substantially larger than in the last quarter of 1931. The improvement then begun was promptly resumed following the termination of the banking crisis in the Spring of 1933. Railway net operating income again increased from \$10,550,000 in March to \$60,000,000 in June. Doubtless the improvement would have continued throughout the last year but for the adoption of government policies to bleed, purge and dope business. As the *Railway Age* began predicting a year ago, the natural improvement has been constantly hindered by these artificial measures. Such improvement as has occurred since then has been less than occurred before the so-called "recovery" policies were adopted. Since March the improvement has been receding. Finally, in the two weeks ending with July 7 freight car loadings, the best measure of total production and commerce, were actually less than in the corresponding two weeks of last year.

Why Not Give Business A Chance?

We hope and believe that the present recession, like that which occurred during August, September and October, 1933, will not long continue. We believe that the natural forces of recovery will prove stronger than the government's harmful policies. With general business actually poorer now than it was a year ago, in spite of all the "recovery" and "reform" measures that have been adopted and ballyhooed, and of the unprecedented public expenditures, increases of taxation and forced advances in wages and prices that have been made, it does seem that those responsible for these policies would begin to see that they are not promoting, but retarding, recovery, and would give business a chance to revive itself.

If it be argued that an advance in freight rates is economically undesirable at the present time, the obvious answer is that it would not have become necessary excepting for the adoption of a long series of economically unsound policies, and that as long as these policies are continued in effect they will necessitate, and therefore justify, higher rates.



Automobile Box Car with Cast-Steel Underframe and Welded Upper Frame

Kansas City Southern Builds Automobile Box Cars

One-hundred cars have cast-steel underframes, all-welded
superstructure frames and are equipped with
modern loading device

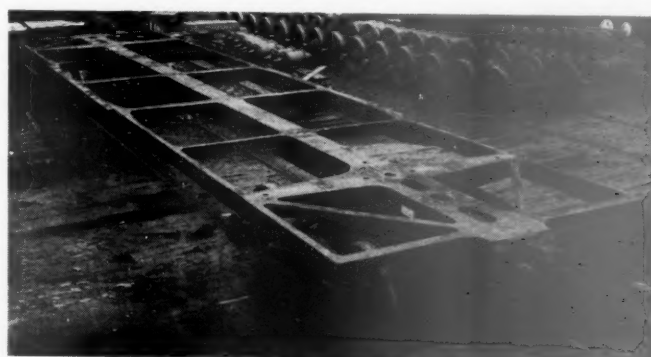
THE Kansas City Southern has just completed building at its main shops, Pittsburg, Kans., 100 automobile box cars of 40-ton wood single-sheathed type, which are believed to be the first box cars equipped with cast-steel underframes. These cars possess the added distinction of having the largest height and cubic capacity and about the lowest weight per cubic foot of capacity, of any 40-ton automobile cars ever built. The steel upper frames of the cars are completely fabricated by electric welding, thus adding to the stiffness of the design and providing a rigid support for the automobile loading device which is installed in each car. It is anticipated that this type of construction, while increasing somewhat the cost of the cars, will prove more than justified by the increased life of the equipment, reduced cost for repairs and lessened out-of-service time. The cars are intended for general interchange service and particularly to meet the requirements of the K. C. S. for handling automobile shipments out of assembling plants in Kansas City, Mo.

The cars are built as high and wide as possible within the recommended American Railway Association clearances for automobile cars and giving due consideration to the special requirements for automobile loading. Each car has an inside length of 40 ft. 6 in., inside width of 9 ft. 2 in., and inside height at the side plate of 10 ft. 4 in., giving a cubic capacity of 3,836 cu. ft. This unusually large capacity is obtained by making the inside height 4 in. higher than in most automobile cars recently built. The car has a light weight of 52,200 lb., which includes the cast-steel underframe, weighing about 11,400 lb., and the automobile loading device weighing approximately 3,200 lb. It is interesting to note, there-

fore, that this car, equipped with a cast-steel underframe and welded upper frame, weighs less than most other automobile cars of similar capacity, embodying conventional riveted-steel construction, especially if the weight of the loading device is taken into consideration. On the basis of light weight per cu. ft. of capacity, the comparison is especially favorable to the K. C. S. car, which stands near the head of the list with a light weight of 13.6 lb. per cu. ft. of capacity.

Sample Car Withstands Severe Tests

The first sample car of this series of K. C. S. automobile box cars, No. 20600, was thoroughly tested before the construction of the remaining cars of the series was started. In the deflection tests, it was desired to learn the deflection of the roof under the maximum load that would be imposed upon it, this condition occur-



Commonwealth Cast-Steel Underframe Mounted on the Trucks and Ready for Application of the Welded Steel Superstructure

ring when automobiles are being raised into shipping position on the auto loader. Consequently, each loader was weighted down with 4,000 lb. of sacked sand equally distributed on the pans of the auto loader and then raised into shipping position with the full load on the hoisting cables, the floor-supporting legs being free. In this position, the maximum deflection of the roof structure was $\frac{1}{8}$ in., the deflection being measured from the inside of the roof sheets down to a gage wire strung beneath the roof on the longitudinal center of the car and secured at each end of the car to the automobile-loader hoist shafts. The roof was found to have returned to its normal position without any permanent deflection or set when the sand was removed from the loader pans and the loaders raised into position under the roof.

After the roof test, grain doors were applied to the door openings and the car loaded with loose sand equally distributed over the floor to a depth of 28 in. to the maximum load limit at the rail of 136,000 lb. Under this uniform load, the maximum deflection of the underframe was $\frac{1}{8}$ in. at the center of the car. With this same load of sand concentrated at the center of the car into

The auto loaders under the roof were undisturbed and the coupler horn did not come in contact with the striking pad on the end sill.

Following the impact tests, the car was moved around the freight house lead at Pittsburg, a 20-deg. curve, and no difficulty was experienced, all clearances of the car parts being satisfactory. The car was then billed to Port Arthur, Texas, and return, a total distance of 1,300 miles; it was loaded to its maximum load limit at the rail of 136,000 lb., with loose sand level in the car. Upon its return to Pittsburg, a careful examination failed to indicate that any defects had developed on the trip and all welded seams were found to be intact. The deflection of the underframe was the same as previously measured under load, namely $\frac{1}{8}$ in., and, when the sand was removed from the car, the under-

General Dimensions of K. C. S. 40-Ton Automobile Box Car

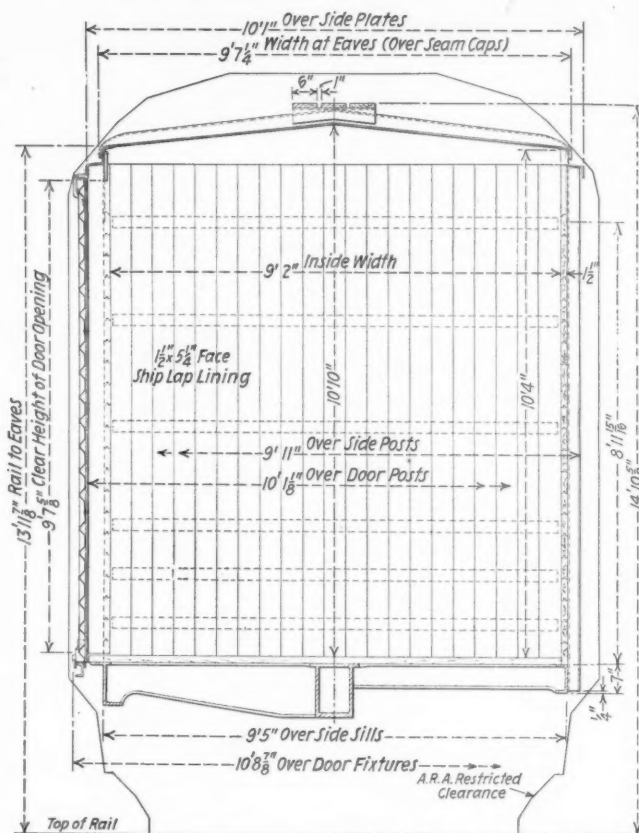
Length inside	40 ft. 6 in.
Length over buffer castings	41 ft. 11 in.
Truck centers	30 ft. 11 in.
Width inside	9 ft. 2 in.
Width overall	10 ft. 8 $\frac{1}{2}$ in.
Height inside at side plate	10 ft. 4 in.
Height inside at center to panels in roof for about 50 per cent of the length of the roof to provide clearance for automobile radiator caps	11 ft. 0 in.
Height over running board	14 ft. 10 $\frac{3}{4}$ in.
Width of side door opening (in clear)	12 ft. 1 in.
Wheelbase of truck	5 ft. 6 in.
Size of journals	5 in. by 9 in.
Diameter of wheels	33 in.
Capacity of car in cubic feet	3,836
Weight of cast-steel underframe	11,400 lb.
Weight of automobile loading device	3,200 lb.
Light weight of car fully equipped	52,200 lb.
Nominal load-carrying capacity	80,000 lb.
Load limit	83,800 lb.

a pile 5 ft. 6 in. high, the maximum deflection of the underframe was $\frac{5}{16}$ in. at the center of the car.

The underframe deflection measurements were determined by gage wires extending between the transom side posts parallel to the machined surface of the side sill and base lines established on the machined surface of the side sills at the center of the car.

Impact tests were made with the car loaded with loose sand to its maximum load limit at the rail of 136,000 lb., the sand being level in the car at the start of the test. A string of six 100,000-lb. capacity K. C. S. Series 28000 gondola cars, fully loaded with coal and with hand brakes set, was used as a back stop against which to run the car. The knuckles on both the first gondola and on test car No. 20600 were closed.

Three impact tests were made at speeds of approximately 8, 12 and 18 m.p.h., the speeds being determined by measuring with a stop watch the time that it took the test car to traverse a marked-off distance of 100 ft. just prior to the impact. On the third impact, at 18 m.p.h., the type-D coupler on the first gondola car failed by breaking through the head and the striking casting on this same car was slightly damaged. The sand in Car 20600 shifted to one end of the car, the floor on the opposite end being cleared of sand for 14 in. back from the end lining. Car No. 20600 was not damaged in any way as a consequence of these severe impact tests. The superstructure and the roof remained in perfect alinement and all welded seams were intact, there being no indication of a rupture at any point.



Width and Height Dimensions in Relation to the A.R.A. Clearance Limits

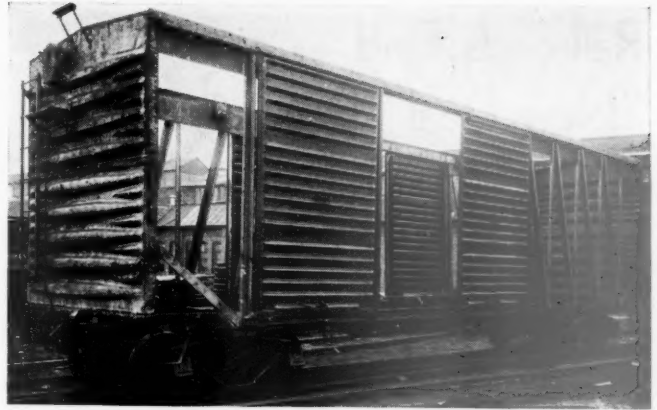
frame returned to its normal position, there being no permanent deflection.

The underframe and superstructure of the new K. C. S. automobile box car has been designed to withstand the stresses imposed by a 50-ton load, but, due to the fact that the cars are expected to be kept primarily in automobile-carrying service, 40-ton capacity trucks are installed as being ample for this loading and for almost all other commodities with which box cars are being loaded at the present time. The car can be readily converted to 50-ton capacity if subsequently desired, however, by the application of 50-ton trucks and without any other changes being necessary. The cast-steel trucks installed are of the National, Type-B design, with a wheelbase of 5 ft. 6 in., 5-in. by 9-in. journals, and Griffin 33-in. chilled-iron car wheels. Wine single-roller type side bearings are installed. The air-brake equipment on the car is of the new AB-type, furnished by the Westinghouse Air Brake Company.

The use of the Commonwealth cast-steel underframe,

furnished by the General Steel Castings Corporation, greatly simplifies the construction of the car. This underframe is a one-piece steel casting, with all cross ties, cross bearers, bolsters, end sills, side sills, center plates, striking castings and A. R. A. standard draft pockets and front and rear draft-gear stops cast integral. The center sills and bolster members are of box-section construction and the side and end sills and cross ties are of channel-section construction. The outside surface of the side sills is machine finished to facilitate application of the posts and braces and the door track brackets. The side sills are 7 in. deep except under the doors where they are 10 in. deep to give additional strength at the doorways, and this part of the casting has flanges projecting outward to support the ends of the deck boards at the doorways. The use of this one-piece cast-steel underframe eliminates 1,263 parts, including rivets, and the welded construction in the superstructure eliminates 1,915 additional parts, including rivets, or a total of 3,178 less parts than in the conventional car.

The Dreadnaught two-piece, corrugated-steel ends are assembled and applied to the underframe by welding. The side framing is in the form of a Howe truss, the vertical and diagonal members consisting of structural Z-section posts and braces and the top horizontal member consisting of a special W-section side plate reinforced by a suitable $\frac{1}{4}$ -in. by 17-in. steel plate, extending downward and cut away to give the required clear door open-



Partially Completed Car before Application of the Roof and Sheathing

as an absorbent to prevent condensation damaging the lading. The remaining steel parts of the car are given a priming coat of rust-inhibitive brown paint all over and two coats of rapid-drying freight-car paint on the outside of the car. The wood sheathing boards are given two coats of rapid-drying freight-car paint on the outside, the joints of all boards in the car being painted before assembling.

All welding on the car frame was done by the electric process, using $\frac{1}{4}$ -in., $\frac{5}{32}$ -in., or $\frac{1}{8}$ -in. electric welding rods, as required. The welding, so far as possible, was

Comparison of K. C. S. Automobile Box-Car Dimensions and Weights with Those of Other Typical Cars of This Type

Automobile box cars	Year built	Sheathing	Length inside	Width inside	Height inside	Capacity, cu. ft.	Total light weight, lb.	Load limit, lb.	Light weight per cu. ft. of capacity
K. C. S. 40-ton	1934	Wood	40 ft. 6 in.	9 ft. 2 in.	10 ft. 4 in.	3,836	52,200*	83,800	13.6
T. & P. 40-ton	1929	Wood	40 ft. 6 in.	9 ft. 0 in.	10 ft. 2 1/4 in.	3,720	50,700	85,000	13.6
G. T. W. 40-ton	1929	Wood	40 ft. 6 in.	9 ft. 1 in.	10 ft. 0 in.	3,712	51,500	84,500	13.9
C. R. I. & P. 40-ton	1927	Wood	40 ft. 6 in.	9 ft. 2 in.	10 ft. 0 in.	3,710	51,200	84,800	13.8
M-K-T. 50-ton	1927	Wood	40 ft. 6 in.	9 ft. 0 in.	10 ft. 0 in.	3,682	51,700	117,300	14.1
C. M. St. P. & P. 50-ton	1929	Wood	40 ft. 6 in.	9 ft. 0 in.	10 ft. 0 in.	3,722	52,800	116,200	14.2
N. Y. C. 55-ton	1930	Steel	40 ft. 6 in.	9 ft. 2 in.	10 ft. 0 in.	3,713	53,600	115,400	14.4
Pennsylvania 50-ton	1934	Steel	40 ft. 6 in.	9 ft. 2 in.	10 ft. 0 in.	3,713	53,600*	115,400	14.4
N. Y. C. & St. L. 40-ton	1929	Steel	40 ft. 6 in.	9 ft. 0 in.	10 ft. 0 in.	3,645	51,600	84,400	14.2
D. L. & W. 55-ton	1929	Steel	40 ft. 6 in.	8 ft. 9 in.	10 ft. 0 in.	3,546	52,200	116,800	14.7

* Includes weight of automobile loading device, 3,200 lb.

ing. The bottom chord of the truss is formed by the underframe side sill, to which the posts and braces are securely electric welded. The corners of the side framing are strengthened by end diagonal braces. The entire side framing, including the top hood and the door stops, is fabricated completely in a specially designed jig before being applied to the car.

The roof is of the Murphy improved solid-steel type, self-supporting and designed to accommodate the automobile-loading device. The doors are of the Youngstown corrugated-steel bottom-supported type, with door openings 12 ft. 1 in. wide in the clear and staggered to give a 6-ft. clear opening across the car. The door-post corners are rounded to provide additional opening. The flooring consists of $1\frac{3}{4}$ -in. by $5\frac{1}{4}$ -in. face ship-lap decking, supported upon the center sill and side-sill flanges and upon intermediate supports composed of structural Z-section stringers.

A special Texaco car cement is applied by spraying to the trucks, the cast-steel underframe and the underneath part of the car, and also to the outside of the steel roof, one heavy coat completing the work on these parts. The inside of the steel roof is given a priming coat of rust-inhibitive brown paint and a finished coat of non-sweating asphaltum paint, upon which sawdust is heavily sprinkled before the paint is dry. The sawdust functions

done in jigs, there being approximately 600 lin. ft. of welding per car. This involved the application of 106.5 lb. of welding rod per car, the total welder's time aggregating 65 hr. per car.



The Automobile Loading Device in Position for Use—Non-Sweating Asphaltum Paint, Heavily Sprinkled with Sawdust, Is Applied to the Steel Roof

Railroads Find "New Deal" Expensive

THE Association of Railway Executives, following a meeting at Atlantic City on July 13, issued a statement saying it had given "extended consideration to what means might be found to meet an increase of approximately \$359,000,000 per year in railway expenses, which will be caused by recent acts of Congress and other developments in connection with the national policy of stimulating upward trends of commodity price levels."

Finding that the various manifestations of the "new deal" policy have greatly increased their expenses but have made no allowance for that fact in reference to their rates, although other industries have been encouraged to increase prices for similar reasons, the railroads have put committees to work to study the possibility of compensating increases in certain of their freight rates and also to arrange for a test in the courts of the validity of the pension bill which was signed by President Roosevelt on June 27.

"The problem of the executives is to find means for gathering increased revenues to meet these increased costs in the making of which they have had little or no participation," the statement pointed out.

"The restoration of pay to employees will increase operating costs approximately \$156,000,000 a year. Payments under the pension bill enacted by Congress will cost the railroads approximately \$66,000,000 a year. And the increased cost of materials, due to the stimulation of the upward trend of the commodity price levels will cost the railroads an additional \$137,000,000 a year, making a total of \$359,000,000.

"The railroads have no sources of income other than money received for services performed for the public, and they are faced with the problem of finding a way to increase their revenues, within the limitations imposed upon them by strict federal and state regulation, without at the same time placing themselves at a disadvantage before their unregulated competitors.

"Committees which have been giving consideration to the problem submitted preliminary reports and will meet again to continue their studies after which further reports will be made to the Association of Railway Executives.

"Among the questions considered was one relating to the Act approved by the President on June 27, providing for a national system of pensions for retired railway employees. The validity of the Act has been carefully considered by railroad attorneys and appropriate committees were appointed by the association to give further study to the terms of the act, with a view to determining whether it should be contested in the courts. Due to certain obscurities in the law, many questions have arisen as to the practical interpretation of some features of the act. These are also being considered.

"The association approved a plan for making a more intensive study than has heretofore been made of competitive transportation agencies, with a view to ascertaining facts which would enable the railroads better to appraise the force of this competition and to take steps to meet it."

A sub-committee of the law committee of the Association of Railway Executives has been meeting in Washington this week to consider plans for obtaining a court test of the pension law and the traffic committee of the association is meanwhile studying the question of rate increases.

Freight Car Loading

WASHINGTON, D. C.

FOR the first time this year and the second time since May, 1933, revenue freight car loading in the week ended July 7 fell below the figure for the corresponding week of the previous year. The total was 519,807 cars, a decrease of 124,765 cars as compared with the week before and of 23,703 cars as compared with the corresponding week of last year, although it was an increase of 103,879 cars over the corresponding figure for 1932. The drop under the loading for the last week of June was largely due to the fact that the week included the Fourth of July holiday but the figures for 1934 and 1933 have been coming closer together for several weeks. The cumulative total for the period ended July 7, however, is over 14 per cent above that for the same period in 1933. Both weeks in the past year in which car loading has fallen below that for the corresponding week of the year before have been weeks which included holidays and there are some indications that under present conditions a holiday is more nearly equivalent to one-fifth of a week than to one-sixth of a week as formerly. All commodity classifications showed decreases as compared with the week before but ore and live stock showed increases as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading
Week Ended Saturday, July 7, 1934

Districts	1934	1933	1932
Eastern	111,060	118,400	91,670
Allegheny	102,756	110,672	79,330
Pocahontas	35,035	37,744	26,561
Southern	69,152	78,660	60,311
Northwestern	75,758	73,053	50,775
Central Western	82,667	80,090	71,349
Southwestern	43,379	44,891	35,932
Total Western Districts	201,804	198,034	158,056
Total All Roads	519,807	543,510	415,928

Commodities	1934	1933	1932
Grain and Grain Products	37,132	45,068	30,293
Live Stock	15,553	13,493	12,928
Coal	80,668	90,035	59,995
Coke	4,136	6,300	2,460
Forest Products	17,443	21,851	11,372
Ore	29,372	18,036	5,440
Merchandise, L.C.L.	137,935	146,760	143,170
Miscellaneous	197,568	201,967	150,270
July 7	519,807	543,510	415,928
June 30	644,572	641,730	488,281
June 23	621,872	609,627	498,993
June 16	617,649	592,759	518,398
June 9	615,565	569,157	501,685

Cumulative total, 27 weeks..... 15,920,138 13,887,810 14,523,748

Car Loading in Canada

Car loadings in Canada for the week ended July 7 totaled 39,947 cars according to the compilation of the Dominion Bureau of Statistics. The holiday on July 2 affected the comparisons with both the previous week's loadings and last year's, showing declines of 6,698 and 522 respectively.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
July 7, 1934.....	39,947	18,785
June 30, 1934.....	46,645	21,056
June 23, 1934.....	44,436	20,591
July 8, 1933.....	40,469	19,353
Cumulative Totals for Canada:		
July 7, 1934.....	1,134,400	620,875
July 8, 1933.....	941,149	479,017
July 9, 1932.....	1,115,899	542,785

To Build Long Bridges Over Bonnet Carre Floodway

Work now being started on structures for the I. C., the Y. & M. V., and the L. & A. that will carry 7.8 miles of single track

WORK will be started within a short time on three bridges that are to perform an unusual service, namely, to carry the tracks of three railways across the Bonnet Carre floodway, an emergency relief channel, 5½ miles long by 1½ to 2¼ miles wide, through which flood water will be diverted from the Mississippi river into Lake Pontchartrain during periods of extreme high water. The railroads involved are the Illinois Central and its subsidiary, the Yazoo & Mississippi Valley, and the Louisiana & Arkansas, which traverse the narrow neck of low land between the river and the lake, that is crossed by the floodway at a point about 25 miles west (upstream) from New Orleans. Because the lengths of the structures made the selection of the most economical design a matter of utmost importance, because the low bearing value of the ground imposed serious foundation problems, and because conditions of flow to be encountered during periods of discharge have had to be predicated on hydraulic studies rather than actual experience, the design of these structures involved the exercise of far more engineering skill and judgment than would be apparent from a consideration of the rather simple types of structures that are to be built.

Important Element in Mississippi Flood Control Plans

The Bonnet Carre floodway comprises an important element in Mississippi River flood control plans, and has for its primary purpose the protection of the levees at New Orleans from flood heights in excess of 20 ft. Specifically, it is designed to divert a maximum of 250,000 cu. ft. of water per second from the river and discharge it into Lake Pontchartrain, thus reducing by one sixth the volume of water, flowing in this stretch of the river during periods of maximum floods, that will reach the city.

The floodway consists of two units, a spillway on the north or left bank of the river, and a discharge channel across the neck of land to the lake. The spillway consists of a concrete wier, 7,698 ft. long between abutments, introduced into the levee flanking the river and provided with suitable means for the support of 7,000 "needle" timbers, that are removed to release the water by a traveling derrick operated on a track on

top of the spillway structure. The discharge channel comprises a strip of the low land extending to the lake, which has been defined by guide levees constructed along each side.

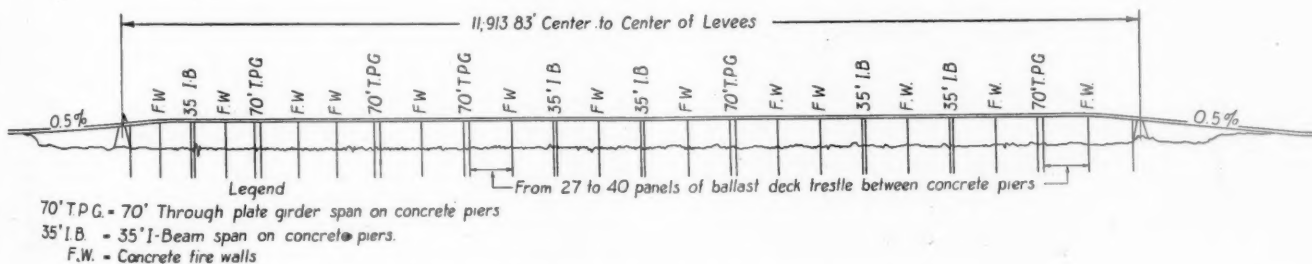
Land is But Little Above Sea Level

The east two-thirds of the floodway location is swamp land, partly covered with timber and having an elevation of less than 2 ft. above sea level, while the west third is largely cultivated land sloping upward to an elevation of about 10 ft. at the spillway structure on the north bank of the river. The ground surface is flat, being broken on the east two-thirds only by a few shallow sloughs and on the west third by some drainage ditches. The most pronounced breaks in the surface are the borrow pits along the two sides of the floodway from which material was taken for the construction of the two guide levees.

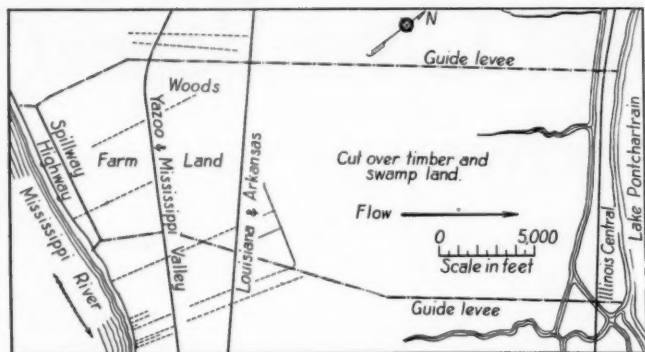
The three railway crossings are widely separated. The Y. & M. V. line is located from 3,000 to 6,000 ft. east of the spillway, and the L. & A. from 8,000 to 12,600 ft. to the east, while the I. C. double-track line lies parallel to and about 600 ft. from the shore of Lake Pontchartrain.

According to hydraulic studies, the maximum discharge of 250,000 cu. ft. per second will result in a depth of water ranging from 14 ft. at the Y. & M. V. bridge to 11 ft. at the I. C. crossing. As a result, it will be necessary to raise the grades of the three railway lines at the crossings of the floodway, in amounts ranging from about 12 to 19 ft.

Test borings, which have been carried to depths of as much as 150 ft. below the surface, revealed a thick top stratum of black muck, high in humus content, overlying successive strata of clays, some of which contain water in such high proportions as to possess extremely low consistencies, while sand in layers of considerable thickness was encountered at depths in excess of 80 ft. In the face of these conditions and the fact that the ground water level is substantially at the surface in some locations at all times and is rarely lower than 3 or 4 feet below ground level anywhere within the area of the floodway, the supporting power of the ground at the site of the bridges is exceedingly low.



Profile of the Illinois Central Crossing of the Bonnet Carre Floodway

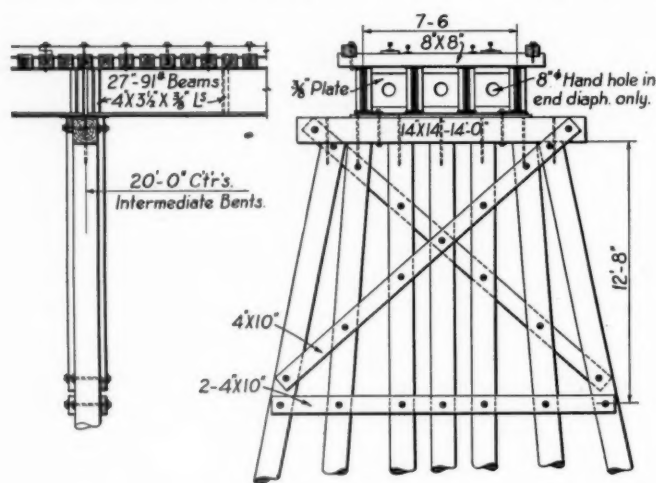


Location of the Three Railways in Relation to the Bonnet Carre Floodway

For example, in the case of the Louisiana & Arkansas bridge, the required penetration of piles was determined after extensive loading tests, from which it was concluded that the safe load on the piles could be taken at 180 lb. per square foot of pile surface. This provides a factor of safety of 2 against a settlement of 0.01 ft. and a factor of safety of 3 against failure.

The I. C. and Y. & M. V. Structures

Because of the lengths of the crossings required, a great deal of study was given to the selection of the type of structure that would meet the requirements most economically under the conditions imposed, and these pointed to the use of long piles for either trestle bents or substructure foundations. The plan adopted for the I. C. and the Y. & M. V. bridges consists of creosoted-timber, ballasted-deck trestles with 13-ft. panels and six piles per single-track bent, these trestles being broken up into units varying from 351 ft. to 559 ft. in length by individual steel spans on concrete piers and by concrete fire walls. Thus, in the Illinois Central double-track bridge, which will have a total length of 11,748 ft., there will be 862 panels of pile trestle, five 70-ft. through plate girder spans, five 35-ft. I-beam spans and 13 fire walls, while the Yazoo & Mississippi Valley single-track structure, which will be 7,999 ft. long, will consist of 593 panels of trestle and eight 35-ft. I-beam spans and will have eight concrete fire walls. The steel spans will have concrete decks to provide a ballasted floor, and will be placed at the location of existing waterways, while providing an approximately uniform spacing of these spans in the structure. The fire walls will be constructed as piers to take the place of the trestle bents in the locations on which they will be placed. They will be



Typical Details of the Louisiana & Arkansas Structure

provided with thin wings on each side, as well as a diaphragm projecting above the bridge seat, to provide a complete separation between the timber decks of the adjoining spans. The I-beam spans consist of 4 lines of 27-in. 112-lb. (C B) beams (per track), flanked on each side by a 27-in. 85-lb. beam.

The anticipated depth of water at the Y. & M. V. bridge at maximum discharge is 14 ft., thereby requiring a bridge with base of rail about 20 ft. above the general ground elevation and calling for an average raise of grade of 16 ft. above the present track level. At the location of the I. C. bridge, the calculated depth of water is 10 ft., calling for a bridge with base of rail about 18 ft. above ground level, or 12.25 ft. above the present track level.

In the Illinois Central bridge, piles for the trestle bents will be from 78 to 90 ft. long and for pier foundations from 67 to 70 ft. long. In the Yazoo and Mississippi Valley bridge, the trestle-bent piles will be from 70 to 77 ft. and the foundation piles from 55 to 60 ft. in length.

The L. & A. Bridge

The Louisiana & Arkansas single-track bridge will be 9,687 ft. long and will consist of 484 I-beam spans, each consisting of four 27-in. 91-lb. beams spanning between 7-pile creosoted bents spaced 20 ft. center to center and carrying a creosoted timber open deck. The structure will be divided into 11 units of 44 panels each by double bents, consisting of two 5-pile bents spaced 5 ft. 10 in. center to center and tower-braced to provide longitudinal stiffness. Instead of fire walls, breaks in the continuity of the timber construction will be introduced by installing five steel ties in place of the wooden ties on each side of each double bent. These will be wide-flange I-beams weighing 35 lb. per foot. The piles will have a penetration of 55 ft.

The end bents of all three bridges will be located far enough inside the crests of the guide levees to preclude the driving of piles through the levee slopes. The gaps between these end bents and the tops of the levees will be closed by short embankments encroaching on the floodway section and will be rip-rapped to protect them from erosion. Because of the raise in grade across the floodway, it will be necessary to build approach embankments outside the levees, all of which are to provide 0.5 per cent grades. Owing to the low bearing power of the soil, unusual settlement of the ground surface under the weight of the embankment is anticipated and special precautions are being taken in placing the filling material.

The floodway has been completed except for the gaps left in the guide levees where the three railway lines and one highway pass through them at their present grades. The bridges and approach embankments will be constructed on offset locations to avoid interference with the operated tracks, and as soon as traffic has been transferred to the bridges, the old lines will be taken up and the gaps in the levees closed.

The plans for the Illinois Central and the Yazoo & Mississippi Valley bridges were developed under the supervision of A. F. Blaess, chief engineer, and C. C. Westfall, engineer of bridges, Illinois Central System, while the Louisiana & Arkansas bridge was designed by E. F. Salisbury, chief engineer.

A TOTAL OF 565,922 PERSONS passed through the Union Pacific's streamlined train on exhibition at the Century of Progress exposition from May 26 to July 12; average persons per day 11,790. This has been equal to 15 per cent of the total attendance at the Fair.

The Folly of Public Ownership*

Would create gigantic political machine, deprive municipalities of tax sources, promote graft and raise transport costs

By Harold W. Roe

President, Associated Traffic Clubs of America and Traffic Manager, Mid-Continent Petroleum Corporation

GOVERNMENT ownership and operation of the nation's railways was made a very live public issue by Co-ordinator Eastman's pronouncement in his first report that "Theoretically and logically, government ownership is the best cure for the ills that now beset our rail carriers." It is true that he did not advocate it as a thing to be accomplished in the near future, due to the strain it would necessarily put on the finances and credit of the nation but we must not blind ourselves to the fact that he is the administration's trusted adviser and that a suggestion of this nature coming from him might possibly appeal to our President and his brain trust.

The mere fact that it would become a strain on the country's finances would probably not act as a deterrent, if the administration thought well of the suggestion. I have no doubt that President Roosevelt would find it an easy matter to convince Congress that the railroads could, under government ownership, be made to earn the interest on the bonds it would be necessary to issue to take them over.

We are fortunate that transportation legislation was not considered by our recent Congress. It is unfortunate, of course, that legislation designed to regulate competing forms of transportation should be postponed for possibly another year, but I believe that our next Congress will be so constituted and the economic condition of the country will be so altered at that time that we may reasonably expect a saner attitude on the part of our lawmakers. An improvement in business conditions, reflected in improved railroad earnings, might possibly eliminate the cause for drastic legislative action which might under adverse conditions seem desirable or necessary.

Consolidation Benefits Possible Under Private Operation

Those who now propose public ownership and operation advance the theory that the consolidation of yards and terminals and the elimination of duplicate services and wasteful practices should be accomplished, but that this means of reducing the expenses of our railroads is not now possible under the highly competitive form of private ownership and operation.

Do these proponents of government ownership intend to convey the impression that railroad management is unwilling or not desirous of effecting these necessary and highly desirable measures of economy? Do they intend to convey the thought that railroad labor is so anxious to be enrolled on the payroll of the government that it would be willing to sacrifice the jobs of the men who would necessarily be laid off in effecting these economies? Do they intend that the public should believe that railroad labor would immediately abandon its demands for higher rates of pay, shorter hours, job in-

surance and old age pensions, and that it would not use the influence of the great political bloc its group would constitute in enforcing those demands?

Would Create an Invincible Political Machine

It is ridiculous to assume that operating expenses, particularly wages, which in 1932 represented 63.5 per cent of total railway expenses, would not be increased tremendously under government ownership. One of the arguments advanced against government ownership when it was being discussed many years ago was that the party in power at the time of purchase would have the right to appoint the vast army of employees then estimated at 1,800,000 or one-tenth of the voting population of the country. With a sure increase of numbers and wages, this patronage would give the party in power such an advantage that it would be next to impossible to remove it without revolution. Opportunities for graft and corruption would be almost without limit. Perhaps this argument, particularly as it refers to continuing the political party in power, may seem a little overdrawn at the present time and under present conditions but it seems to me that it still holds good with regard to the powerful political machine that would be created and the opportunities for graft and corruption that would be afforded.

Reasons for Government Ownership Absent in U. S.

Much has been said by the proponents of public ownership, including Mr. Eastman, of the governmentally owned and operated railroads of other countries, particularly Canada, and the inference has been left that at least in some of these countries such ownership and operation were satisfactory and profitable. The causes which brought about government ownership in these other countries are not present in the United States. We are not a military nation and do not need government operation for military reasons. Some countries have found it necessary to own and operate their railroads to bring about a quick development of their natural resources. Others have adopted government ownership to accomplish specific political, social and economic aims. It is doubtful if any of these governmentally owned and operated roads have been operated as efficiently or as economically as they would have been under private ownership and management.

Mr. Eastman in his first report also mentions our own governmentally owned and operated "Alaska Railroad." A careful reading of the special Senate committee's report on this railroad should convince anyone that it has not been free from political influence, or that it has not been efficiently operated. This report, printed and released in 1931, in speaking of the necessity of increasing freight and passenger rates, reads in part as follows: "The history of the operation of the property renders this clear, as the Alaska Railroad has never

* From an address before the Central Western Shippers' Advisory Board at Troutdale, Colo., on June 30.

in any one year since its inception in 1916 paid its mere expenses of operation, to say nothing of the additional capital expenditures that have been required annually, and interest upon the \$70,000,000 that have been invested in the property. Congress has been called upon year after year to make appropriations, not merely for new capital but to cover deficits which, for the seven years beginning with 1924, alone total \$8,100,000 and for the fiscal year 1930, \$1,213,000, while the total apparent debit balance is nearly \$11,000,00; a sum that would be greatly increased if worthless items carried as assets are written off." Another part of the report reads as follows: "A factor, other than inadequate passenger and freight rates that contributes to the annual deficits is looseness and inefficiency in the conduct of the railroad's business and affairs, and of activities incidental thereto".

Much has also been said (most of it unfavorable) regarding the operation of our railroads by the Railroad Administration during the war. Obviously it is not fair to make a comparison of this period of government control and operation with government ownership and operation during normal peace times. Many of us, however, gained through that experience a knowledge of government inefficiency in management and of profligate expenditures and reckless use of the public's money sufficient to put us on our guard against government ownership. The president of one of our greatest railroad systems, who held a position of great importance and vast authority with the Railroad Administration, recently told me that he would be unwilling to place in any one man's hands the authority and control over our railroads that he had at that time.

States Would Lose Tax Source

One of the most disastrous results of government ownership and operation would be the loss to the states and municipalities of the taxes paid by our privately operated railroads, which amount in normal years to more than \$1,000,000 per day. I am sorry that I have not had the time nor the opportunity to determine how the loss of this revenue would affect the state of Colorado. I do know that in our southwestern states, many counties are almost entirely dependent on railroad taxes for the support of their schools and that many of them have been forced to request the railroads to pay a part of their taxes in advance to prevent the closing of their schools. The Montana Railroad Commission recently stated that the railway corporations now pay approximately 27 per cent of the total taxes received for the support of its state, county, municipal and school district governments. Any substantial reduction in these tax payments would involve the necessity for a complete reorganization of its present tax system, pending which, hundreds of its schools would be so impoverished as to cause the complete suspension of many vital educational activities.

It was recently determined that in the state of Indiana the taxes collected from the steam railroads in 1932 constituted 8.88 per cent of the total tax collections for the year and that of the total amount collected from the railroads more than \$5,000,000 was appropriated for the schools of the state. This amount represented 41.74 per cent of all taxes used for the support of its public school system and was sufficient to provide an entire year's schooling for 59,906 pupils. Perhaps the state of Colorado is not so dependent upon railroad taxes for its schools as some of our other states, but I am inclined to believe that it is.

In case of government ownership, this source of revenue would be lost to your city, county and state treas-

uries, and appropriations for the support of your schools and various other public purposes would have to be cut accordingly, or new forms of taxation on corporations and individual property be devised to make up the deficit. The result of this necessity is appalling when we consider that it applies to every township and municipality through which our railways operate. Many small communities are dependent almost entirely on the taxes collected from their railroads. Assuming that the present estimates to supply the public needs in the state of Colorado are reasonable and sufficient and would have to be maintained, the additional taxes, in the event the taxes paid by the railroads were lost to you, would, without doubt, in every case be unreasonable and exorbitant, and would create a tax burden too great for most of your citizens and corporations to bear.

Costs Would Rise and Taxes Would Meet Deficits

It would be difficult to reach any conclusion other than that the total cost of furnishing transportation would be increased under government ownership. We all know that in any government project there is more reckless expenditure and dishonesty than in private business and that in spite of any safeguards we might erect for the ownership and control of our railroads by the government, we could reasonably expect the usual amount of inefficiency, coupled with nearly every form of graft and dishonesty that such a tremendous undertaking would permit.

Experience has taught us that government operation of any economic function is generally characterized by lack of efficient management, bad operating methods, waste, inefficiency, delay and hesitancy, as opposed to privately managed business. We have no reason to believe it would be any different in the operation of our railroads.

It is reasonable to assume that the increased economic burden to the nation, if the government should decide to take over the railroads, would have to be borne by the taxpayer. Under government ownership, with its attendant evils, if rates are made high enough to cover all the costs of operation, depreciation and interest, they will necessarily be higher than under our present efficiently managed and operated private systems. If they are not made high enough to cover all of the costs, the balance will be supplied through taxation, with the result that some will receive transportation at less than actual cost while others will be forced to pay part of the cost of furnishing transportation they do not use. This is precisely what is happening today in the case of our inland waterways.

I am convinced that neither government ownership and operation nor government regulation, as it is practiced today, offers any solution of our present transportation problems. I am also convinced that reasonably regulated private management has all of the advantages and none of the disadvantages of any plan of government operation so far advocated. And I believe that with even a partial return to normal business conditions, together with a policy of fair and impartial transportation legislation applied to all transportation agencies, private management alone will be able to cure at least most of the present ills of our railroads.

THE ZEPHYR, HIGH-SPEED, STREAMLINED TRAIN of the Chicago, Burlington & Quincy, was placed on exhibition at the Century of Progress exposition on July 15. Since its first presentation in Philadelphia, Pa., on April 18, the train has traveled 15,000 miles, going from coast to coast; and it has been inspected by 1,059,768 visitors in 180 cities.

Canadian Railways Popularize Excursions*

480,000 passengers and \$1,300,000 revenues secured on week-ends
in 22 months in 1932 and 1933

By A. A. Gardiner

Assistant General Passenger Traffic Manager, Canadian National

UP to the time of the Great War the usual basis for company excursions in Canada was single fare for the round trip for short limits. These short limit tickets were good going one day and returning the next day, or over the Sunday or the holiday. Fare and one-third for the round trip applied for longer limits. For one or two days during the larger exhibitions tickets were also sold at approximately two-thirds of the one-way fare for the round trip. During the War excursions were discontinued, chiefly because the railways' resources were devoted to war movements.

Following the War excursion fares were restored, but upon a somewhat higher basis than formerly. The higher cost of producing the service and the increased purchasing power of the public, compared with pre-war days, tended to justify the higher bases applied. However, the tremendous growth and the wider and more popular use of the automobile since 1914 reduced excursion travel by rail.

Prior to the War the railways found little difficulty in booking capacity excursions. In fact it was difficult to find sufficient Saturdays and Sundays during the summer months to accommodate all the applications from Sunday schools, societies, outing clubs, labor organizations and employees' excursions committees, particularly when many of them booked their excursions in advance and waited until the Monday morning preceding Saturday or Sunday of departure to make definite arrangements.

Through the increased use of the automobile all this was changed. In some cases excursion promoters found that a one day's outing by train no longer appealed to many to whom the rail excursion had formerly been an annual red letter day. They, with many others, were week-ending by automobile regularly. Some organizations gave up excursions altogether. Others went on the excursions, but did so by highway, using either private automobiles or buses. These influences cut down seriously what had been a very large and profitable business. The depression did not help matters, and this particular feature of our traffic took on an especially disappointing and dismal aspect.

And then something happened. An entirely new line of action was decided on. February, 1932, saw a new departure. The struggle of the public to bring down the average passenger fare had, perhaps unavoidably, created in the minds of the average passenger traffic man the idea that the average fare must be kept up. It perhaps needed more than courage; it required patience, and withal tact, to start a movement contrary to what had become a traditional attitude of the railways.

In the early Fall of 1931 the Canadian Pacific and the Canadian National operated excursions between Mon-

tréal and Toronto at \$10 for the round trip. The results were not even mildly encouraging, each line carrying only 75 passengers on each excursion—barely sufficient to meet the advertising cost. This experience proved of value, however, when it became necessary to fix fares for future experimental excursions.

Success Follows Failure of First Attempt

In arranging for the excursions an effort was made to establish such a low fare that a mass movement would be created, which would in turn enable the railways to handle the traffic at a low per capita cost. A fundamental consideration, of course, was that the excursions should be creative. They must move passengers who would not otherwise travel and must not draw from regular traffic.

On February 6, 1932, the Canadian railways ran their first low fare coach excursions. One line ran an excursion from Ottawa to Montreal and return, and the other from Quebec to Montreal and return. For these experimental excursions the fares were fixed at approximately one cent per mile in each direction. The round trip fare from Ottawa to Montreal and return was \$2. From Quebec to Montreal and return it was \$3.

Various estimates were made beforehand as to the number of excursionists that would move. There was nothing to go by. It was in the dead of winter, and in the midst of a depression. Some found courage to hope for 600. Others, admitting rashness, proclaimed, rather apologetically, that "you never can tell; we might get a thousand."

They were all wrong. One excursion carried 2,932 and the other 3,262 persons. Here indeed was something worth sitting up to notice. Excursions were then run in the opposite directions; one brought 2,930 and the other 3,762. The experiment seemed to be working out all right. Since then, by monthly conferences, the Canadian National and the Canadian Pacific have arranged for these excursions to be run wherever and whenever they appeared likely to produce satisfactory results. From the first two excursions on February 6, 1932, up to the end of last November (22 months), 480,000 passengers were carried by the two lines.

The general basis, for shorter distances, has remained at approximately one cent per mile. For longer distances the fares have been scaled down, the decision to do so having largely been influenced by the unsatisfactory experience with the Montreal-Toronto excursions at \$10. To date the two lines have carried over 40,000 excursionists between Montreal and Toronto, an average per day of approximately 60.

From the timorous experiment between Quebec and Montreal and Ottawa and Montreal on February 6, 1932, we have reached out to such distances as Quebec

*From an address before the Canadian Railway Club at Montreal, Que.

to Chicago and from Halifax to Toronto and return and between Eastern and Western Canada, as well as between the Prairies and the Pacific Coast. Today, while we have not yet found it worth while to run coach excursions from Chicago to Quebec, we have run excursions from Quebec to Chicago for \$15 for the round trip.

Our experiences have produced many surprises. Most of them have been pleasant but some have been less pleasing. Together with the Canadian Pacific we handled almost 480,000 passengers, our combined revenue amounting to over \$1,300,000 from February 6, 1932, to November, 1933, 22 months—a daily average for the period of more than 720 passengers and over \$1,950.

Patrons Come from Many Walks of Life

Where do all these excursionists originate? Some of them, of course, were passengers who would have traveled by rail if the special fares had not been authorized. Just what proportion of the total these passengers represent, it is hard to estimate. No doubt it varies, according to the destination and, to some extent, the starting point of the excursion. It is likely to be larger, for example, on an excursion from Montreal to Toronto than on one from Mont Joli to Montreal. Whatever the proportion is, each passenger carried at the excursion fare who would otherwise have moved by rail at full fare, constitutes in the final analysis a loss to the railway. This is the dark side of the picture. Happily, there are other sides to show.

A large number of excursionists are those who if it were not for the excursion would travel by automobile and by bus. Comparing the possibility of using their automobile with the expense of a journey by rail at regular fares, quite a number of people decide in favor of the automobile. Where the comparison is between the automobile and the rail journey at low fare, many make up their minds to travel by rail.

Many believe, however, that a large portion consists of those who would not travel at all if it were not for the excursions. From the cities, especially, a great deal of the money reaching the railways as coach excursion fares is probably money that would otherwise be spent on picture shows or on some other form of amusement or recreation. This latter class of travel is, of course, the most interesting. Not only does it bring to us earnings that would not otherwise reach us, but use of the railway helps expand, more effectively than could be done in any other way, the idea that the railway is an incomparable, continuing and worthy factor in passenger transportation. These excursions are, in fact, providing to many for the first time, and to others after a long period in which the once familiar experiences of railway travel had almost passed out of their lives, a living, convincing proof of its advantages. Its certainty, its reliability and its freedom from the anxiety characteristic of automobile travel are thus becoming better known and appreciated. Many young people old enough to vote have taken their initial railway ride on these excursion fares, and many others have, at these fares, returned to the railways after many years' absence.

Excursions Cost 45 Cents Per Dollar of Revenue

Costs have been watched closely. They have amounted to approximately 45 cents per dollar of revenue. These figures take into account advertising and all other traceable out-of-pocket expenses. As with all railway expense, a great part of the out-of-pocket costs of performing this service represents wages for labor that would not

have been employed if the excursions were not run. This latter feature is particularly pleasing and valuable in such times as those in which we now find ourselves.

Many features of interest have been noted and all appear to encourage the hope that these excursions will continue to be successful and to thus support the wisdom of perpetuating them. For example, with the notable exceptions of such destinations as Quebec, Detroit, Mich., and Chicago, few of the excursionists stay at hotels. Most of them visit friends or relatives. This not only cuts down the expense to the excursionist but makes the excursion more attractive to him. It makes it a venture to be repeated more often than would otherwise be the case. It also establishes the probability of an excursion in the opposite direction being a success. Such diverse attractions as flying meets and devotional exercises, snowshoe gatherings and double header baseball games have helped popularize the excursions. Extra train mileage was necessary in some instances and especially on the outbound movements, but in most cases regular trains have been used often in both directions.

Customers Must Be Fed Cheaply

The carriage of large numbers of passengers at low fares involved the desirability of keeping down costs in order to keep numbers up and make the movements profitable. This presented the problem of providing for meals, or at least for refreshments, at moderate prices, especially on the longer movements. For the smaller movements newsboys carried sandwiches and peddled coffee through the trains. On the longer movements lunch counter cars were operated and provided generous cups of coffee and farm-size sandwiches at five cents each. A number of the excursionists brought their own lunch baskets, of course. Inquiry as to the average amount spent per passenger on a train from Montreal to the Maritime Provinces, where the average ride was of 20 hours' duration, brought forth the quite surprising information that this average was 22 cents per head. One cannot very well eat for less when traveling for 20 hours. This light expense for meals is of real importance in planning future movements, for if the fares had been low and the cost of meals on trains had been high, people would refrain from taking or repeating trips.

On longer runs the newsboys did a land-office business and provided a really useful and appreciated service by renting pillows at 35 cents per night. On longer movements and where crowds have been handled, our special agents department has been very helpful, but the uniformly good-natured character of the excursion movements has made our policemen's lot, on this assignment, a happy one, despite the fact that tradition is all to the contrary.

Advertising is expensive, especially when large newspapers in such centers as Toronto, Montreal, etc., have to be used. We cannot, however, do without them in excursions from the larger points, nor where excursions are run from stations within the territory through which these metropolitan newspapers circulate. A very low cost and a most effective form of advertising, however, is represented by the small printed dodger. These are distributed in thousands for each excursion at a nominal cost. The general rule is that excursions will not be advertised more than two weeks before the date they are to take place. This generally gives ample time to have them reasonably well announced. There have been cases where individual employees have slipped up and broken this rule, but this, we feel, has generally been chargeable to oversight rather than to a disloyal effort to take advantage of the other fellow.

Railway Purchases Higher And So Are Costs

May supply bills nearly double those of previous May —
Prices up 15 per cent — Buying widely diversified

ADDITIONAL facts regarding the current volume and diversification of railway buying and also the effect of increased prices under N. R. A. codes on railway costs are contained in available records of the materials and supplies received by the railroads in May. Total purchases for May, exclusive of new cars and locomotives, approximated \$60,500,000, which is the largest expenditure in any one month in three years, and about 95 per cent more than was spent during the previous May. Excluding fuel, the May figure approximates \$41,100,000, including, as it appears from the preliminary data, \$4,700,000 for cross ties, \$4,800,000 for rails, and \$31,600,000 for other materials. Excluding new cars and locomotives, purchases for the first five months

with \$67,950,000 for fuel, \$10,380,000 for ties and \$77,270,000 for manufactured materials in the same period in 1933.

Higher Prices Cost Millions

Records of coal consumed by all the railroads show an increase of 12 per cent in average cost during May, as compared with May, 1933, while a comparison of the average prices paid during May by a representative rail-

Materials and Supplies Purchased—May, 1934, and May, 1933

	1934	1933
Atchison, Topeka & Santa Fe.....	\$1,800,569	\$1,269,077
Atlanta, Birmingham & Coast.....	87,879	44,666
Bangor & Aroostook.....	178,375	173,128
Boston & Albany.....	375,951	223,615
Central of Georgia.....	299,836	160,840
Chicago & Eastern Illinois.....	218,026	111,783
Chicago & Illinois Midland.....	62,000	20,390
Chicago & North Western.....	1,442,912	1,025,174
Chicago, Burlington & Quincy.....	1,564,805	771,329
Chicago, Mil. St. P. & Pacific.....	1,471,330	868,581
Chicago, Rock Island & Pacific.....	1,170,624	618,096
Chicago, St. P., Minn. & Omaha.....	312,245	239,783
Delaware & Hudson.....	460,719	290,227
Duluth, Missabe & Northern.....	120,507	35,366
Duluth, South Shore & Atlantic.....	33,217	18,435
Elgin, Joliet & Eastern.....	151,522	125,936
Erie.....	1,611,505	1,006,396
Florida East Coast.....	113,791	77,043
Great Northern.....	1,750,379	471,687
Lehigh & New England.....	46,134	23,382
Minneapolis, St. P. & Sault Ste. Marie.....	469,987	340,942
Mobile & Ohio.....	210,101	97,080
Nashville, Chattanooga & St. Louis.....	220,848	201,584
Northwestern Pacific.....	28,061	18,173
Pittsburg & Shawmut.....	16,003	4,953
Pittsburg, Shawmut & Northern.....	12,112	24,775
St. Louis-San Francisco.....	1,088,914	645,235
Southern Pacific.....	1,788,923	675,707
Tennessee Central.....	26,288	21,671
Texas & New Orleans.....	516,433	183,150
Western Pacific.....	192,200	137,900

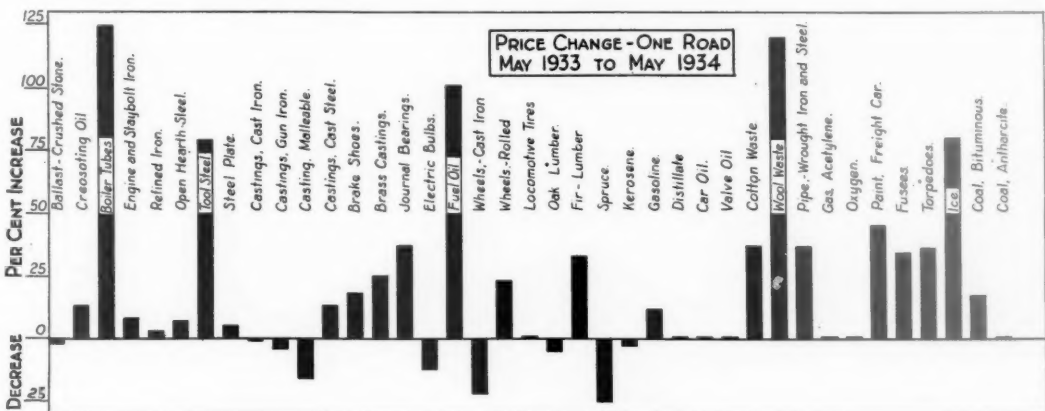
Railway Purchases*					
	Fuel	Cross Ties	Other Material	Total	Total, Less Fuel
1932					
January	\$17,500,000	\$2,400,000	\$21,600,000	\$41,500,000	\$24,000,000
February	17,900,000	2,400,000	23,100,000	43,400,000	25,500,000
March	18,300,000	3,900,000	23,300,000	45,500,000	27,200,000
April	15,000,000	4,000,000	21,800,000	40,800,000	25,800,000
May	14,000,000	3,200,000	21,300,000	38,500,000	24,500,000
Five Months	\$82,700,000	\$15,900,000	\$111,100,000	\$209,700,000	\$127,000,000
1933					
January	\$15,300,000	\$1,850,000	\$16,150,000	\$33,300,000	\$18,000,000
February	14,000,000	2,000,000	14,100,000	30,100,000	16,100,000
March	13,900,000	2,250,000	15,750,000	31,900,000	18,000,000
April	12,000,000	2,160,000	14,840,000	29,000,000	17,000,000
May	12,750,000	2,120,000	16,430,000	31,300,000	18,550,000
Five Months	\$67,950,000	\$10,380,000	\$77,270,000	\$155,600,000	\$87,650,000
1934					
January	\$17,263,000	\$2,592,000	\$21,970,000	\$41,825,000	\$24,562,000
February	18,406,000	3,245,000	22,809,000	44,460,000	26,054,000
March	20,209,000	3,394,000	28,612,000	52,215,000	32,006,000
April	17,900,000	5,500,000	35,600,000	59,000,000	41,100,000
May	19,400,000	4,700,000	36,400,000	60,500,000	41,100,000
Five Months	\$93,178,000	\$19,431,000	\$145,391,000	\$258,000,000	\$164,822,000

* Subject to revision.

totalled approximately \$258,000,000, including \$93,178,000 for fuel, \$19,431,000 for cross ties and \$145,391,000 for rails and other manufactured materials, as compared

road show a weighted average increase of approximately 12 per cent in the cost of materials, exclusive of fuel and rail, the latter costing all roads 9 per cent less. These figures refute impressions that increases in expenditures are due to increases in costs alone, the fact being that the largest part of the increase in expenditures is the result of increases in the consumption of materials.

May Costs of Typical Commodities Compared With May, 1933



Purchases by One Railroad, May, 1934, and May, 1933, Excluding Cars and Locomotives.

Class of Material	Unit	Quantity		Av. Cost		Value	
		1933	1934	1933	1934	1933	*1934
Frogs, switches, crossings and parts.....						\$1,615	\$67,821
Bars, angle, and rail joints.....	Ea.		19,362	\$3.707			71,774
Bolts, track.....	Lb.		447,240	.040			18,090
Plates, tie, inc. inspect.....	N.t.		1,956	43.358			84,828
Spikes, track.....	Lb.		927,310	.026			24,617
Other track fastenings.....						382	16,054
Tools, track, exc. shovels.....						119	2,066
Other track and roadway tools.....						250	2,175
Cars, section, inc. parts.....						250	2,001
Interlocking and signal material.....						6,062	23,247
Telephone and telegraph material.....						711	204
Building brick, sand and stone.....						3,893	6,889
Cement.....	Bbl.		306	2.338			716
Pipe, cast iron, and fittings.....						269	122
Ties, Switch.....	Ft.	80,191		.036		2,886	
Ties, cross.....	Ea.		4,272	.868			3,709
Ballast, crushed stone.....	N.t.	1,859	8,929	.820	.80	1,526	7,143
Rail, includes inspection.....	G.t.		7,466		36.95		275,876
Derricks and other port. equip. and parts.....						164	1,357
Oils, creosoting.....	Gal.	399,636	519,705	.063	.071	25,396	37,350
Total maintenance of way.....						43,730	647,590
Bolts, nuts, rivets, washers, etc.....						3,818	6,531
Springs, coil and elliptic.....						557	2,709
Tubes, inc. safe ends.....	Ft.	6,336	146	.164	.382	1,048	55
Arch brick.....						1,920	2,403
Sheet brass, copper and steel tubing.....						483	1,257
Iron, engine and staybolt.....	Lb.	3,214	39,630	.055	.060	178	2,413
Iron, refined.....	Lb.	1,996	11,552	.053	.055	106	637
Steel, billet, inc. inspect.....	Lb.		19,025		.031	42	600
Steel, open hearth.....	Lb.	95,955	262,342	.021	.022	2,038	5,986
Steel, tool.....	Lb.	124	636	.151	.270	18	172
Other bar iron and steel.....						397	3,660
Plates, 1/2-in. and over, tank.....	Lb.	54,562	248,010	.019	.02	1,040	4,963
Plates, boiler and firebox.....	Lb.		43,370		.023		1,022
Rods, piston, loco., inc. inspect.....	Lb.		3,042		.099		301
Other locomotive forgings.....						255	2,882
Steel, formed or shaped.....						101	659
Other car forgings.....						335	5,159
Castings, cast iron, inc. grates.....	Lb.	11,625	22,206	.037	.037	435	828
Castings, gun iron.....	Lb.	18,953	17,516	.063	.060	1,202	1,064
Castings, malleable iron.....	Lb.	3,930	9,552	.107	.090	421	861
Castings, cast steel.....	Lb.	9,025	69,846	.069	.078	624	5,446
Wheel centers, driving.....	Ea.		5		128.216		641
Other locomotive castings.....						233	456
Cylinders, locomotive.....	Ea.		8		835.00		6,680
Brake beams, freight.....	Ea.	500		4.00		2,000	
Couplers and parts.....						1,235	5,782
Draft gears and parts.....						895	2,074
Roofs, freight car metal.....	Ea.		75		57.45		4,308
Shoes, brake.....	N.t.	65	103.67	37.89	44.46	2,479	4,609
Other car castings.....						3,747	6,495
Brass and composition castings.....	Lb.	64,537	98,634	.102	.128	6,581	12,668
Bearings, journal.....	Lb.	86,214	78,485	.069	.095	6,021	7,520
Air-brake equipment.....						780	2,540
Mechanical appliances for locomotives.....						3,415	8,195
Car-heating material.....						213	152
Cotton duck.....	Yd.	925		.269		248	
Plush.....	Yd.	166		2.775		461	
Other fabrics.....						1,964	8,518
Electrical material for loco. and power plants.....						3,694	6,616
Bulbs, electric.....	Ea.	6,589	5,777	.204	.179	1,344	1,037
Electrical material for rail motors and autos.....						3,317	3,445
Oils, fuel.....	Gal.	32,230	14,527	.035	.042	1,128	622
Gasoline.....	Gal.	58,331	88,029	.063	.071	3,698	6,307
Fire brick, fire clay, etc.....	Lb.		12,682		.061		775
Axles, loco. driving, inc. inspect.....	Lb.				.009	23,091	20,717
Wheels, cast iron.....	Lb.	1,983,621	2,273,193	.011			
Wheels, rolled and forged steel.....	Ea.	38	24	32.67	40.19	1,241	964
Tires, locomotive.....	Lb.	26,237	18,007	.056	.056	1,487	1,017
Lumber, oak dimension.....	Ft.	24,742	34,831	.04	.037	981	1,306
Lumber, pine or fir, dimension.....	Ft.	201,144	1,162,130	.033	.044	6,708	51,115
Lumber, spruce—dimension and boards.....	Ft.	6,091	112,500	.039	.029	238	3,271
Other forest products.....						6,010	12,417
Shop machinery and machine tools.....						423	2,887
Oils, kerosene or long-time burning.....	Gal.	13,038	17,987	.074	.071	967	1,293
Oils, rail motor car.....	Gal.	498	788	.567	.568	282	447
Oils, car.....	Gal.	12,920	13,599	.140	.14	1,816	1,903
Oils, valve.....	Gal.	3,599	5,733	.30	.30	1,079	1,719
Miscellaneous.....						3,957	8,111
Waste, cotton wiping.....	Lb.	13,272	15,113	.04	.055	530	831
Waste, woolen packing.....	Lb.	5,229	10,249	.065	.142	339	1,460
Pipe, wrought iron and steel.....	Ft.	5,654	15,735	.094	.129	535	2,030
Pipe fittings and plumbing supplies.....						929	3,789
Hardware, including nails.....						1,040	4,126
Hand and small mach. tools.....						1,900	7,986
Welding supplies.....						1,701	1,858
Hose, air, steam and misc.....	Ft.	2,700		9.363		1,105	283
Packing and misc.....						1,460	4,165
Gas, acetylene.....	Cu. ft.	146,002	217,993	.0142	.014	2,066	3,093
Gas, oxygen.....	Cu. ft.	305,470	541,090	.0125	.012	3,818	6,763
Paints, freight mineral brown.....	Gal.	351	1,701	.65	.946	228	1,610
Other paint and supplies.....						6,391	9,377
Power-plant equipment, exc. electrical.....						317	684
Total maintenance of equipment.....						129,285	294,697
Fuses.....	Gro.	30	280	7.00	9.40	350	2,632
Laundry.....						325	359
Shovels and scoops.....	Doz.	35		11.56		404	
Tinware.....						221	424
Torpedoes.....	Gro.	45	200	2.60	3.547	117	709
Other train supplies.....						2,441	4,858
Ice.....	N.t.	215	1,006	2.683	4.829	577	4,862
Fuel, bituminous.....	N.t.	53,110	72,491	3.547	4.156	188,369	301,267
Fuel, anthracite.....	N.t.	50	1,017	7.92	7.944	395	8,080
Commissary supplies.....						1,197	2,050
Machine rentals.....						2,370	2,165
Typewriters and adding machines (new).....						47	575
Typewriters and adding machine repairs.....						293	561
Other stationery.....						22,791	27,094
Total transportation.....						219,943	356,122

At the same time, it is evident that higher prices have had considerable to do with the great increase in the supply bills, for which an estimate of \$25,000,000 of the expenditures of materials and supplies and fuel during the first five months of the year appears conservative. That is about how much more money the railroads were required to pay from January to June for materials and supplies than the same volume of purchases would have cost the previous year. If new cars and locomotives are included, the increased outlay attributed to increases in prices of labor and materials under the N. R. A. codes would be still larger.

Typical Prices

While the prices paid by a single road are no conclusive criterion of average prices throughout the country, they are not without value, especially when the tendency of the N. R. A. codes has been to bring about greater uniformity in the costs of similar materials. Of 38 classes of material for which comparable data are available, 22 classes cost more in May of this year than in May, last year, while the costs were lower for 9 classes. Compared with an index of 100 in May, 1933, the average costs of materials on this road in May, 1934, were 113 for creosote oil, 233 for boiler tubes, 107 for open-hearth steel and tool steel, 105 for tank plates, 99 for cast iron, 113 for steel castings, 118 for brake shoes, 125 for brass castings, 202 for fuel oil, 123 for rolled wheels, 133 for pine and fir siding, 137 for cotton waste, 220 for wool waste, 137 for iron pipe, 145 for freight-car paint, 180 for ice and 112 for gasoline. These increased costs are consistent with estimates that increases in prices will entail increased costs for material and equipment to all the Class I railroads for 1934 of about \$75,000,000.

One Month on One Road

Statistics covering the purchases of a single Class I railroad last May (the most recent month for which data are available) afford an unusually broad glimpse of the scope of railway buying. The railroad is not one of the large carriers, but is typical of the majority of Class I properties. Measured by the value of the invoices approved, the purchases of materials and supplies and fuel on this road in May, 1934, showed an increase of 230 per cent, as compared with May, 1933, while purchases, exclusive of fuel, showed an increase of 384 per cent. The May figures included \$68,110 for lumber, as compared with \$16,826 in the previous May; \$275,876 for rails (no rails were bought in the previous May), and \$610,488 for miscellaneous material, as compared with \$392,958 in May of last year. Purchases for maintenance of way and structures amounted to \$647,590 in May, as compared with \$43,730 in May, 1933, while purchases for maintenance of equipment totaled \$294,697, as compared with \$129,285 a year ago. Increased purchases are shown in 91 of 100 different classes of material used by the railroad.

The figures for May of this year include many items of material that were not purchased last year, notably 19,362 angle bars, 447,240 lb. of track bolts, 1,956 tons of tie plates, 927,310 lb. of track spikes, 306 bbl. of cement and 20 tons of firebox steel. They show purchases of 519,702 gal. of creosote oil, as compared with 399,636 gal. in May, 1933; 39,630 lb. of engine oil, as compared with 3,214 in May, 1933; 262,342 lb. of open-hearth steel, as compared with 95,955; 248,010 lb. of steel plates, as compared with 54,562 in May, 1933; and 119,120 lb. of iron and steel castings, as compared with 43,533 lb. in the same month a year ago. The pur-

chases for May, 1934, included 103 tons of brake shoes, 95,634 lb. of brass castings, 88,029 gal. of fuel oil, 2,273,193 lb. of cast iron wheels, 34,831 bd. ft. of oak lumber, 1,462,130 ft. b. m. of fir lumber, 17,987 gal. of kerosene, 13,599 gal. of car oil and 5,733 gal. of valve oil. Other items shown in the May, 1934, purchases of this road include 15,113 lb. of cotton waste, 10,249 lb. of wool waste, 15,735 ft. of steel pipe, 217,993 cu. ft. of acetylene gas, 541,090 cu. ft. of oxygen and 1,701 bbl. of outside car body paint.

In the one month of May, the requirements of the one road are further represented by an expenditure of \$6,531 for common bolts, \$2,709 for coil and elliptic springs, \$2,403 for arch brick, \$1,257 for sheet copper, \$8,041 for locomotive forgings, \$5,782 for couplers, \$2,074 for draft gears and parts, \$2,540 for air-brake materials, \$8,195 for locomotive appliances and \$18,579 for electrical material. In the same month, \$2,887 was expended for shop tools, \$3,789 for pipe fittings, \$4,126 for hardware and nails, \$7,986 for hand tools, \$1,686 for acetylene welding supplies, and \$575 for new typewriters or similar equipment.

New Books...

Mathematical Tables, by Howard Chapin Ives, 160 pages, 7 in. by 4 in. Bound in imitation leather. Published by John Wiley & Sons, Inc., New York. Price \$1.50 net.

This is the second edition of Ives Tables which appeared first in 1924, and like the first edition, contains tables of logarithmic and natural trigonometric functions and allied information. Additions made in the present volume include an enlargement of the table of trigonometric formulas, new stadia reduction tables and a table of formulas for differentiation and integration.

The British Isles, A Geographic and Economic Survey, by L. Dudley Stamp and S. H. Beaver. 719 pages, 8½ in. by 5½ in. Illustrated. Bound in cloth. Published by Longmans, Green & Company, London, Eng. Price \$8.

This book, as described in its preface, is an attempt to "take stock of the natural resources of the British Isles, and show what use has been made of those resources in the past and to analyze the present position." Particular attention has been given by the authors to the natural or geographical factors which influenced the utilization of resources and thus their point of view is that of economic geographers. Among the book's 33 chapters outlining the status of British agriculture and industry is one on the growth of communications which sketches the evolution of the present railway network in Great Britain. Also, of interest to railway men, is the closing chapter entitled "The National Capital—Its Growth and Distribution," which was contributed by Sir Josiah Stamp, chairman of the London Midland & Scottish Railway.

A Handbook of NRA (Second Edition) edited by Lewis Mayers. 842 pages, 9 in. by 5¾ in. Bound in cloth. Published by Federal Codes, Inc., New York and Washington, D. C. Price \$10.

This book is designed to solve "the increasingly difficult problem of keeping up with NRA." It presents an analysis and compilation of the National Industrial Recovery Act and related statutes, and of executive orders, regulations, agreements, administrative rulings and judicial decisions relative thereto. Also, there are included comparative presentations of typical code provisions, complete texts of 25 major codes and summaries of minor codes. Although identified in its title as the second edition of a previous work not yet three months old, this book is described in the announcement of its publishers as "a completely new work having little in common with the old except the name."

The editor, Dr. Mayers, is associate professor of business law at the College of the City of New York and the plan of the publishers is to keep the book up-to-date with a semi-monthly supplement service.

Communications . . .

What Are the Unions — Brood Hens or Birds of Prey?

TO THE EDITOR:

When if ever will the railway companies do something to protect their organized employees from themselves? This question may appear absurd to those not acquainted with railway employees' schedules. I don't know how many schedules there are, but I venture to estimate there are between 15 and 25 each containing from 40 to 60 pages of printed matter on most roads, and in my forty-five years of experience I have been unable to find a single paragraph in any of these schedules that suggested *economical* operation. On the contrary if the schedules were written with the sole object of destroying railway business and increasing the cost of it they could not be more effective than the ones now in force.

The railway business must be endowed with extraordinary vitality to have withstood so long the politicians and the schedules. The reason why I say the railroads should protect the organized employees from themselves should be plain. If the railway business is damaged or destroyed, what becomes of the employees? Are they not likewise damaged or entirely out of work?

Car Repairs Away from Terminal

Two examples will illustrate the workings of the schedules from the section foreman to the locomotive driver. One day some years ago a freight conductor set out a loaded car at a station on a branch line some 150 miles from the home terminal. The dispatcher asked the station agent to find out what was wrong with the car. The agent asked the section foreman to examine it and the foreman reported that the air pipe was cracked where the elbow holding the rubber hose was attached and further said he could fix it. He took a cold chisel and broke off the pipe at the crack, took the elbow to the local blacksmith who removed the portion of the pipe in the elbow at a charge of ten cents. As there remained an inch or more of the threaded pipe on the air pipe, the foreman took a stillson wrench and replaced the hose and the car was reported O. K.

The section foreman was given credit marks for his action and he was happy, but this credit was bulletined at headquarters and in a few days Mr. Walking Delegate called on the foreman and told him what would happen if he ever did anything like that again. At an expense not exceeding fifty cents he saved the company some thirty to forty dollars—the cost of sending a mechanic 150 miles out on a branch line where there was only one or two trains a week, to say nothing of the loss of the use of the car for a week or more. If it had not been for the schedule the conductor could have taken the car behind the caboose to the terminal. When the roadmaster told me what had happened I called on the general manager and asked how much longer the railroads would stand for such conditions. His reply was: "The trainmen have promised to do the *right thing* this fall if we will refrain from referring to their actions on the bulletin board where the walking delegate would see them." Is that not evidence enough to prove something is wrong—men willing to work but afraid of the walking delegate and the schedule?

A Day's Wages for 1½ Hours' Work

Another example: I recently rode between two cities a little over 300 miles apart on a train which covered that distance in slightly more than six hours, upon which three engine crews were used. I figured that with time allowed for getting engine out and putting it away (something they have not done in thirty years or more) the company paid wages for 4.1 days to the enginemen for 6¼ hours actually worked. Why should a locomotive driver receive more pay per hour than the superintendent or why should he receive from four to six times as much per hour as the man who drives a bus, run in competition with the railroad, when the engineman's job is easier and less dangerous? If the dual system of measuring time is continued it will be

only a short time before locomotive engineers will be paid over 1¼ day's pay for one hour's work.

About forty years ago I was working on a Western road the president of which was trying to get votes to make the road's headquarters town the capital of the state. We were ballasting a branch line and were ordered to close down the steam shovel and load ballast by men. Going to lunch one day as we were passing the idle steam shovel an Irish hand looked up and remarked: "There you are, you can puff and blow and do the work of a hundred men, but you can't vote." Is this idea which is influencing the Brain Trust to have laws passed in the United States further increasing railway costs?

Unions for Protection or Tribute?

You may think that I am opposed to unions but that is not the fact. I believe in co-operation that necessitates unions. What I am fighting is the false teaching of labor leaders, I care not whether they be railway men, American Federation of Labor, I. W. W., Communist, Socialist or what have you—they all teach the same doctrine, namely, get your name on the payroll for as much money as possible, do as few kinds and as little work as possible and thereby make more jobs for your fellow workmen, without any thought or consideration of where the money is coming from to pay for these padded costs.

The remedy for the railway trouble to my mind consists in discarding all schedules, the dual system of measuring time, and every rule and regulation that tends to decrease the output of the individual. Increase wages and do as much work as possible by the piece thereby encouraging the energetic and ambitious man to make some extra money. In other words increase the output of the individual, to illustrate that wages is not a true measure of cost but rather that the ratio of production to cost is the true gage. Some thirty-two years ago when I was manager of construction of a road I received a letter from my chief enclosing one from the vice-president in charge of finance, virtually claiming that I was either a fool or a thief because he saw on a payroll that two Swedes were making about nine dollars each per day. They were loading track ties onto flat cars in the material yard at the rate of one cent per tie. I did not reply at once but on a short branch we were constructing I had the ties loaded by Italian laborers who were getting \$1.50 per day, and we found that the cost to the company was over four cents per tie. The vice-president soon became one of my most staunch friends.

Another example: some thirteen or fourteen years ago I was connected indirectly with a short line owned by a public body. There was very little business on it but about twenty-seven men were attempting to make a living in the train service. They were not making a hundred dollars each per month and the railroad was losing about \$8,000 per year before paying interest. The McAdoo wage award came along and made matters worse. I suggested that we get five or six men to break away from the unions, and pay them higher wages but without any restrictions upon what work they could be called upon to do. The result was that five of the men agreed to this and they were paid from \$175 to \$225 per month, instead of less than \$100. That has been going on for thirteen or more years and the deficit has been practically wiped out, notwithstanding the fact that the cost of tie renewals has greatly increased. I personally know some of these men and they are contented and pleased with their lot.

Management Must Be Fair and Honest

There is a plan of co-operative committees of employees in operation on a mining operation in Canada where between four and five thousand workers are employed. The plan has been in successful operation for about eighteen years and thus can hardly be called an experiment. This is the kind of co-operation that the labor leaders are trying to strangle and if they get the support of the Brain Trust they may succeed. In the co-operative system the men are not taxed to support autocratic labor leaders. The unions in their selfish interest of those who have jobs have succeeded in bringing about present chaotic

conditions. They have been in control for about fifty years. Do you not think it is about time the railway executives should take a hand in the game for the general good of all concerned? It is going to take considerable time to gain the confidence of the employees and the way to gain that confidence is by being 100 per cent fair and honest with the men.

CONSULTING ENGINEER.

"This Mad Age"

TO THE EDITOR:

I have read with interest the editorial in the June 16 issue of the *Railway Age*, particularly that part captioned "Regaining Lost Business," as well as other editorials bearing on the same subject in prior and subsequent issues.

The other evening I saw a movie called "This Mad Age," which consisted of cuttings from various reels taken at different times beginning with 1917. While the picture as a whole was, what it was intended to be, a very clever piece of political propaganda, nevertheless it was also illustrative of American inconsistency, if I may so call our occasional methods of doing things without apparent rhyme or reason.

Shortly after seeing this film, I attended a meeting of the American Association of Railway Superintendents, and heard some very interesting and informative committee reports and addresses. Outstanding among the latter were those of J. M. Fitzgerald on Public Relations, and Robert Collett on the Fuel Problem. Mr. Fitzgerald stressed the advisability of each division superintendent constituting himself a committee of one, to call on his townsmen and convince them of the need of supporting the railroads with their business if either or both were to prosper. Mr. Collett made clear the fact that perhaps the fuel costs offered one of the most fertile fields toward which their energies could be directed. Both speakers knew their stuff and I have no comments to make on either address, but all the while they were speaking my mind kept reverting back to the lesson of the movie.

Mr. Collett stated that the railroads haul approximately 95 per cent of all the coal produced, or about 475,000,000 tons per annum. They burn about 125,000,000 tons per annum, therefore they must obtain direct revenue from the balance, or from 350,000,000 tons. Mr. Collett also stated that in addition to this they burn about one-third of all the fuel oil produced. The question then naturally arises, how much of the total amount of oil and oil products is shipped by rail? How profitable is this traffic, considering the fact that the empty tank cars cannot be used for return freight shipment?

To a man up a tree it would appear logical to apply a little reciprocity. Patronize those who patronize you. Of course, it might be said that the coal must move by rail as it cannot be forced through pipe lines, and the business does not appeal to the trucker. Cannot this argument, however, be applied to oil and oil products? Do the railroads get any appreciable quantity of this traffic that can move either by pipe-line or truck?

The point I am trying to make is this: With but few exceptions, all railroads burning oil as fuel in some or all of their locomotives pass through or near coal fields. Some of the operators in such fields have difficulty in making both ends meet, due to lack of tonnage. Therefore, is it not logical to assume that the additional 20,000,000 tons of coal per annum (see Mr. Collett's paper) distributed among such operators would put them on their feet, result in more employment and increased prosperity all around? There would be little if any decrease in employment in the oil industry, since the production of oil and oil products is largely mechanical.

The state of Texas has the largest proven field of lignite coal in this country—a lignite of excellent quality entirely suitable for locomotive use. It can be mined at low cast-stripping proposition—as the overburden seldom exceeds eighteen feet. It has a B.t.u. value of about 7200 as mined and will store without appreciable slacking except on the surface of the pile. Of course, the consumption per unit of work will be greater than if bituminous coal of higher B.t.u. value is used, but based on the true measure of value, cost per 1000 gross ton-miles or per passenger car-mile, it will compare favorably. At any rate, based on present cost of fuel oil, a change from oil to this or

any other kind of coal presents a very attractive means of reducing operating expense.

The above statement is made with a full knowledge and appreciation of the collateral savings possible with oil, such as handling, reduction in standby losses, absence of the cinder disposal problem, smoke, cinders, etc. On the other hand, cinders make good ballast, coal cars can frequently be loaded toward the mines, the price of coal does not fluctuate like oil, and an adequate supply is always available within a reasonable price range. Furthermore, with the rapid extension of air-conditioned cars the coal smoke and cinder nuisance will soon disappear.

I hold no brief for coal, but I do believe we are overlooking some bets, due in my opinion to our method of keeping statistics. For instance, our figures are based on pounds per 1000 gross ton-miles or passenger-car train-mile. While such figures are all right for any individual road, they are of little value for comparative purposes. Even pounds of coal per 1000 gross ton-miles per hour is not a good yard stick, as naturally the user will insist on a grade of coal that will enable him to show a good performance on the generally used statistical basis.

By "grade" we refer to size more than quality. If however, size is forgotten and quality only is considered, it is often possible to take advantage of the market and relieve the operator of the slow moving grades, lump or slack, or what have you, which in a slow market sell for less than the grade in demand, thus relieving the operator of a per diem car charge, and at the same time giving the railroad the benefit of the reduced price during the time such differentials obtain. This applies particularly to slack, which at certain seasons is available at a price considerably below that of contract standards.

True, the consumption of slack on a 1000 gross ton-mile basis may be somewhat greater than that of the contract standard, but as it all comes from the same mines there is little difference in the B.t.u. value; therefore on a dollar and cents, or cost basis, it will be found that the difference in price far more than offsets any increase in consumption. Mr. Collett could have told the superintendents of the saving he effected on the Frisco by going to the cost basis, but presume he was too modest. However that may be, the reduction in fuel cost, not pounds, per gross ton-mile made on the Frisco were so marked as to be almost unbelievable.

Old King Coal is anything but a Merry Old Soul today, but as he is the railroad's best customer, it does look as though he is worth more consideration than he who ships as much of his product as he can via pipe line and truck and only gives the railroads what is left. I firmly believe if we throw away the old yard stick and go to cost of fuel per 1000 gross ton-miles, the economies possible through burning coal where available will stick out like a sore thumb and bring the smile back to Old King Coal's face.

R. P. F.

Necessity for Research

DENVER, COLORADO

TO THE EDITOR:

I have been reading *Railway Age* for the past four or five months with a great deal of interest. For the first time I see in your March 17 issue, under "Railways and Patents" the answer to the dilemma which exists with the railroads at present, and at the same time I am satisfied that this is the only way out.

Railroad executives have too long ignored the advances of development and condemned, without investigation, devices offered to them. I do not mean that every device offered to the railroads would be a valuable one, but certainly it is not possible for them to find out whether or not it is valuable unless they make the effort to investigate. More editorials like the one mentioned above are what the railroad executives need.

It is only a few years ago that the accessory manufacturers were thriving, but automobile manufacturers, almost over night, included all these accessories as standard equipment. In no small measure has the individual inventor been responsible for the efficiency and comfort of the modern automobile; but I personally know that railroad executives are not even interested in making a cursory examination of what I believe is a panacea for the bulk of their loss.

JOSEPH P. RUTH.

Odds and Ends . . .

Is the U. P. Unique?

The claim of being the only railway owning a ball park used by a team in a professional league might be advanced by the Union Pacific. The team in question is the Lincoln Club of the Nebraska State League.

Tallest Railroader

Although Charles Garvey, 6 ft. 11 in., of the Southern Pacific, holds for the present the mythical trophy of the *Railway Age* for the world's tallest railroader, other roads have not given up. Word comes to this office by grapevine telegraph that the Canadian National is engaging in a feverish hunt for giants in its employ, and there are rumors that the Norfolk & Western may produce a seven-footer.

Champion Puzzler

In the past eight years, Telegraph Operator L. P. Wright of the Louisville & Nashville has won more than \$1,200 in solving puzzles appearing in newspapers, his most recent prize of \$550 being the largest he has won to date. Several times he has come in second on prizes amounting to as much as \$5,000 and he now announces that he does not intend to quit his hobby until he lands one of these major prizes.

Took 2,000-Mile Trip Just for Train Ride

There is at least one man left in North America who doesn't give a whoop about speed or hurry or far-flung ambitions or any of those things which harass the life of the average individual. He is a farmer and he lives near North Battleford in the northern section of Saskatchewan. He arrived in Vancouver at 9:30 o'clock one morning recently on one of the one-cent-per-mile excursions of the Canadian National. Instead of following the crowd of sightseers, he approached the ticket agent and inquired timidly if it would be all right for him to hang around the station until the next train left for the East. That would be at 2:45 in the afternoon.

"None whatever," replied the ticket clerk, "but wouldn't you like to walk around and see something of Vancouver while you are here?"

"No, sir," said the traveler, shedding his fur coat and hat, and ignoring the shining beauty of a Pacific Coast city that never knows winter, "I just came west for the train ride. It has been a good one and I'm satisfied. I'm going home on the next train."

It is 1,025 miles from North Battleford to Vancouver.

New Trains Give No Hope for Free Transport

"Gentlemen, look at the train of tomorrow," the railroad president stated proudly and flung an eloquent arm toward the tube of polished steel. The reporter crouched down and looked at the underparts of the streamlined train. "No rods. Nothing to catch the flow of air," he remarked to his fellow. His fellow answered not at all. But from over his shoulder came a growl. "Terrible." The reporter straightened in shocked surprise. Here was something that approached blasphemy. He stared into a pair of faded blue eyes under a tattered rim of discolored felt. The reporter paused beside the mysterious stranger who was now down on his knees peering under the train. He straightened up and faced the reporter. He jerked a thumb at the gleaming train. "I ask you," he barked, "what's gonna happen to railroadin'?" He pointed. "Look under the train. Where are the rods? I ask you, where are they? How is a 'bo gonna ride the rods when there ain't any rods to ride?"

He glanced after the departing railroad president. "Progress! Says you! I ask you where's the progress in buildin' a train that ain't got any blind baggage. Why, mister, a leech couldn't stick to that thing when she starts ramblin'. No rods, no blind baggage. And, mister, what will they do to the side-door pullmans when they get to them. And that bird talks about pick-up. How can you hop a ride at the top of the grade comin' out of the yards when one of these contraptions

comes steppin' along with no more hand-holds than you'd find on a peeled banana. And if you did make it where would you stay? You couldn't hang onto that thing any more than you could hang onto a greased eel."

His faded blue eyes glared at the reporter. "Progress! That's a laugh. It looks to me, mister, like they're gonna take all the fun and romance outa railroadin' and call it progress! Mister, you can keep your progress. Me, I'm goin' up the tracks a ways an' hop a rattler. The farther I get from this kinda railroadin' the better I'll feel. Progress!"—*Christian Science Monitor.*

B. & O.'s Bridal Coach Attracts Many Prospective Brides

The Nova Scotia, the bride's coach, which the Baltimore & Ohio is exhibiting at A Century of Progress, Chicago, is proving popular especially to the fair sex, many of whom have believed the tradition and sat within the coach for the required 10 min. with the hope of being married within the year. According to tradition, the maiden who enters this bridal coach and remains for 10 min. without speaking may expect to wed within the year. The Nova Scotia is the first railroad coach used in Canada and is said to be the oldest railway passenger coach on the North American continent. It was built in London, England, and shipped to America in 1838, to be used by the directors of the Albion Coal & Iron Company of Nova Scotia. It so happened



that the new governor general of Canada was a passenger on the ship which brought the coach to America. On the day that the ship was docked, the governor general was married and the coach was used to convey him and his bride to their home, 25 miles distant. Since that day it has been known as the bridal coach.

The young lady in the picture above is Miss Gracie Jones, 16, British railway queen contest winner. She is the daughter of a Welsh engineer working on the London, Midland & Scottish.

NEWS

Warns Against Further Regulation of Business

It would stifle initiative on which industrial leadership of U. S. was erected, says Houston

A warning against further governmental regulation which would stifle the individual initiative upon which the industrial leadership of the United States was erected was delivered, at Charlottesville, Va., on July 14, by George H. Houston, president of the Baldwin Locomotive Works, speaking before the Institute of Public Affairs at the University of Virginia.

Mr. Houston, who is chairman of the Durable Goods Industries Committee, and vice-president of the National Association of Manufacturers, said that full regulation of society was but the restoration of the ancient theory of "the divine right of kings—that the economic planners can do no wrong."

"While all recognize," he added, "that the insecurities of the recent depression years have been destructive of much of the material prosperity upon which we have prided ourselves, yet in seeking for the cure for this insecurity, great care is necessary not to so regulate and control the private affairs of our people as to discourage new enterprise and foreclose opportunity to the individual."

"Existing unemployment is centered in the field of durable goods and particularly in construction," Mr. Houston said. "Recovery in this field can be accomplished only through a restoration of price parity, of confidence in the future, with stimulation of forward looking enterprise and provision of adequate credit upon attractive terms. The credit supply appears to be available but the confidence is lacking and price parity is not in evidence. The future ability of the durable goods industries to recover is dependent upon the continued rapid turnover of the country's inventory of durable goods including the facilities of living, as well as those of industry and commerce."

"Are the abuses, sought to be corrected by the restrictive regulatory undertakings initiated in this field in recent months, of so serious a character as to warrant these regulations being placed upon industry at this time, even though they slow up and possibly prevent full recovery? This is the question we are facing today and only as it is answered correctly will we see a restoration of prosperity."

"I do not believe the answer lies in further governmental penetration into private enterprise, but rather, in the withdrawal of government from undue regu-

lation of and interference with business, and in the freeing and stimulating of the impulses of the individual to participate again in private enterprise in search of a profit through the free and untrammelled production of the goods and services needed by the country."

I. C. C. Moving to New Offices

The Bureau of Locomotive Inspection, the Bureau of Safety, and the Bureau of Service of the Interstate Commerce Commission have moved their offices to the new Interstate Commerce Commission building at Twelfth street and Constitution avenue, Washington. The general offices of the commission are expected to move shortly.

Mississippi Valley Barge Line Asks Additional Rail-Water Rates

The Mississippi Valley Barge Line has filed with the Interstate Commerce Commission a complaint asking the commission to require the establishment of additional joint rates and through routes via its barge line on the Ohio and Mississippi rivers and railroad connections from a large part of the United States.

J. T. Williamson Nominated for Retirement Board

John T. Williamson, superintendent of the relief and employment of the Chicago, Burlington & Quincy, and chairman of its pension board, has been nominated for appointment by the President as a member of the Railroad Retirement Board which is to administer the pension law passed by the recent Congress. The law provides for a board of three, including one nominated by the railroads and one by the railroad labor organizations and a chairman to be selected by the President.

Chicago-Milwaukee Schedules Reduced

The Chicago, Milwaukee, St. Paul & Pacific and the Chicago & North Western, on July 15, reduced the running time of some of their trains between Chicago and Milwaukee, Wis., 15 min., thus placing the trains on schedules of 90 min. for the 85 mi., and establishing the fastest regularly scheduled trains between two commercial centers in the West. For the present, the Milwaukee's trains leaving Chicago at 9 a.m. and 3:35 p.m., and the North Western train leaving there at 3:35 p.m., will operate on the reduced schedules. In the return direction the 90-min. schedule will be in effect for the Milwaukee's trains which leave Milwaukee at 7:35 a.m., 10 a.m. and 11:45 a.m., and for the North Western train leaving at 7:15 a.m.

New P.W.A. Allotments for Waterway Projects

Additional \$90,000,000 announced in one week is about half the total allotted for railroads

Additional allotments totalling nearly \$90,000,000 for river and harbor improvements, flood control and power projects were announced last week by the Public Works Administration, many of them representing second year allotments for these projects. The total for the one week was approximately half of the total amount allotted for railroads, and the announcements were followed by another that the \$3,700,000,000 P.W.A. fund is now in a state of virtual depletion, although some additional funds for loans may be raised under the provision of law authorizing the Reconstruction Finance Corporation to purchase marketable securities from the P.W.A.

Allotment of \$18,000,000 for continuing lock, dam and channel work on the Upper Mississippi river was announced on July 12. The allotment was divided into two parts: For continuation of work on locks and dams on the upper river, \$17,000,000; for regulating dykes and revetments necessary to better stabilize the channel and reduce future maintenance costs on the Mississippi between the Ohio and Illinois rivers, \$1,000,000. In connection with the work on the Mississippi, Administrator Ickes also announced an allotment of \$203,000 for work on the Illinois river. The fund will be used for dredging and stabilization work on the nine-foot channel between the Great Lakes and the Mississippi river.

The \$18,000,000 Mississippi river allotment was in the nature of a "second year" allotment. It will continue the work started with a \$22,000,000 allotment made last year for locks and dams on the upper river. Besides this allotment the P.W.A. last year also authorized \$11,500,000 for dredging a nine-foot channel between St. Louis and Minneapolis. Other allotments include:

Allotment of \$16,736,000 to continue channel and control work on the Missouri river. For continuing work on the Upper Missouri between Kansas City and Sioux City, \$15,000,000 was allotted. To carry forward the work on the river between Kansas City and the mouth, \$1,736,000 was allotted. Both allotments are "second year" allocations to continue work started with P.W.A. money last year. P.W.A. previously allotted \$14,153,108 for improvement of portions of the Upper Missouri through systems of revetments and dikes,

and the work has gone forward under the direction of the Corps of Engineers of the War Department. For improvements to the Lower Missouri, P.W.A. last year allotted \$3,600,000 to supplement existing improvements to aid six-foot channel plans. The new allotment brings the P.W.A. contributions to the Missouri river improvement work to \$34,489,108.

Pushing ahead with the huge power, navigation and flood control dam project on the Columbia river at Bonneville, Oregon, the Public Works Administration also announced a "second year" allotment of \$11,000,000. Work on the Bonneville dam was started with an original allotment of \$20,000,000 from the P.W.A. last year. Located about 40 miles above the city of Portland, Oregon, the Bonneville dam is expected to serve as a source of cheap power for its entire section and to make Columbia river navigation possible up to the Snake river.

An additional allotment of \$25,000,000 to carry on work on the Fort Peck dam and reservoir in eastern Montana was also announced, bringing the total to \$50,000,000 allocated by P.W.A. for the Fort Peck project which is designed to conserve water and control the flow of the entire length of the Missouri river.

An additional allotment of \$7,000,000 to continue work on the Tygart reservoir and dam in West Virginia was announced. Ten million dollars in P.W.A. funds have been allotted for this project which has as its purpose the provision of an adequate water supply during low water periods for navigation on the Monongahela river and the impounding of flood waters in the Monongahela river valley. The additional allotment will enable the War Department to let a single contract for construction and completion of the dam and appurtenant works as a unit at a considerable saving.

Allotment of \$2,946,000 to continue improvement work in seven eastern seaboard harbors and waterways will be used to carry forward work started with \$6,836,000 allotted last year by P.W.A. for the projects. The "second year" allotments are: Boston harbor, Mass., \$260,000; Cape Cod canal, Mass., \$1,000,000; New Haven harbor, Conn., \$100,000; Hudson river channel, New York, \$165,000; Raritan river to Arthur Kill, \$324,000; New York and New Jersey channels, \$347,000; Delaware river, Philadelphia to Trenton, \$750,000.

Allotment of \$2,940,000 to continue improvement work on three important eastern rivers includes: Ohio, \$500,000; Allegheny, \$240,000; Kanawha, \$2,200,000.

Allotments totalling \$1,960,000 for continuing improvements to the St. Clair and Detroit rivers, Mich., were announced. For the St. Clair river, \$1,000,000 was allotted. Work will be continued on dredging to afford more adequate facilities for vessels used in Great Lakes trade. For the Detroit river work, \$960,000 was allotted. On this river the fund will be used in continued dredging and removal of rock to provide better facilities for the lakes trade.

A "second year" allotment of \$1,043,000 to continue improvements to the Houston Ship Channel at Houston, Texas, will be used to continue work started under a previous P.W.A. allotment of \$1,500,000. The project consists of deepening and

widening the channel to full dimensions necessary for the large commerce of the port.

Two "second year" allotments to continue improvements in Indiana Harbor near Gary, Indiana, and the Cleveland, Ohio, harbor, were announced. For work on a breakwater and channel necessary to afford safe entrance for large lake commerce at Indiana Harbor, the sum of \$700,000 was allotted. For breakwater construction to afford better protection to heavy lake traffic at Cleveland, Ohio, harbor, the sum of \$150,000 was allocated.

An allotment of \$1,000,000 to continue work on the lower Rio Grande and rectification of the river in the El Paso-Juarez area was announced. An allotment of \$500,000 was made to carry on the project on the lower Rio Grande. By agreement the United States and Mexico are attempting to control the flood waters by construction of flood channels and by shortening the length of the river. An allotment of \$500,000 also was made to carry on the second year of work on the river rectification project. This project is designed to remove the menace of floods and to straighten the meandering Rio Grande in the El Paso area by reducing its distance from 155 to 86 miles.

An allotment of \$650,000 was made to continue work started on the Cape Fear river, North Carolina. This project calls for providing a protected 8-foot waterway. The sum of \$3,700,000 was allotted for dredging and flood control work on the Caloosahatchee river and Lake Okechobee in Florida. This also will continue work started under a previous allotment. For the second Florida project, to provide more adequate facilities for commerce in Tampa harbor, \$500,000 was allotted.

I. C. C. to Investigate Georgia Passenger Fares

On petition of the railroads operating in Georgia the Interstate Commerce Commission has ordered a proceeding of investigation as to the effect on interstate commerce of reduced intrastate passenger fares required to be established by an order of the Georgia Public Service Commission on March 16. The commission order prescribed a maximum of two cents a mile, and although the Southern roads generally are making rates on a basis of approximately one and one-half cents a mile for coach travel the interstate fares good in parlor and sleeping cars range from 2 to 3 cents a mile.

I. C. C. Inquires as to "Additional Compensation"

Commissioner Meyer, as chairman of Division 4 of the Interstate Commerce Commission, has referred to the Reconstruction Finance Corporation correspondence with the trustees of the Chicago, Rock Island & Pacific regarding a payment of \$10,000 made to Marcus L. Bell, vice-president and general counsel of the company, authorized by the executive committee on June 7, 1933, shortly before the directors authorizing the filing of a petition under the bankruptcy act, as "additional compensation," covering work "out of routine" during the preceding six months in connection with the plan for a

unification of the Rock Island subsidiaries and a new mortgage. Commissioner Meyer inquired as to what consideration had been given by the trustees to this payment, in addition to Mr. Bell's salary of \$32,509, and as to what steps had been taken to recover the amount for the benefit of the estate of the company. The correspondence in reply stated that the payment had been duly authorized in recognition of services performed.

Terminal Changes at Camden

The electric trains of the Pennsylvania-Reading Seashore Lines no longer enter the Federal street terminal at Camden, N. J., over the Seventh street line; since July 18, all electric trains run to and from this terminal by way of the Van Hook street cut-off, using the elevated line to Broadway station and the existing line between Broadway and the terminal.

Col. Waite Resigns from P. W. A.

Col. Henry M. Waite has resigned as deputy administrator of the Public Works Administration, effective September 1. The resignation was announced with regret by Public Works Administrator Harold L. Ickes who praised the Colonel for his "splendid contribution to the recovery program." Col. Waite is leaving P.W.A. to return to Cincinnati, where he will take charge of the Department of Economic Security, an organization designed to cope with unemployment and rehabilitation problems, sponsored by the city of Cincinnati, Hamilton county, Ohio, and the Spelman Foundation.

Chicago Regulates Brokers of Bus Transportation

The City Council of Chicago, on July 11, passed an ordinance, to become effective on July 21, regulating the operations of so-called Travel Bureaus, which by advertising in newspapers and otherwise, purport to provide transportation to passengers by automobile on the highways for pay. The ordinance requires such operators to guarantee the performance of the service that they agree to furnish the passenger. It will be unlawful for a broker to do business without a license. He must file a bond in a single sum of \$1,000 to indemnify persons against loss or damage occasioned by false or misleading advertising, or false representation or fraud on the part of the broker. The broker must maintain a record, securely bound in book form, of the names and addresses of persons transported, the amount paid by each, the date of each transaction, the points of origin and destination and the name and address of the person, firm or corporation acting as a carrier. Such records are to be kept open for the inspection of the police. The annual license fee is \$25 and violators of ordinance are subject to fine.

Railroad Subsidiary Sells New Jersey Bus Routes

The Board of Utility Commissioners of New Jersey in a recent decision approved the transfer, to Public Service Coordinated Transport, of municipal consents which had been held by the Pennsylvania-

Reading Motor Lines, Inc., highway subsidiary of the Pennsylvania-Reading Seashore Lines, for the operation of 24 buses between Atlantic City, N. J., and Cape May and on that portion of the Wildwood-Avalon route between Wildwood and Cape May Court House. Transfer of municipal consents for the operation of 26 buses on these routes had been sought in the application but the Board refused permission for the transfer as to two buses on the Wildwood-Cape May Court House section of the Wildwood-Avalon route, holding that their retention by the Pennsylvania-Reading Motor Lines, Inc. may subsequently be necessary in order to fulfill all obligations of the Pennsylvania-Reading Seashore Lines to adequately serve the territory involved. Also, for this same reason, the Cape May Court House-Stone Harbor-Avalon section of the Wildwood-Avalon route was retained by the Pennsylvania-Reading Motor Lines, Inc.

Pennsylvania Conducts "Better Salesmanship Conferences"

The Pennsylvania recently conducted, for agents and ticket sellers in its New York zone, a series of "Better Salesmanship Conferences" at which discussions were led by P.R.R. and Long Island traffic experts and supervisory officers. As announced by A. H. Shaw, general passenger agent, the cardinal purpose of the conferences was to assure the giving of "the nth degree of courteous and efficient service to patrons."

The conferences took the form of "intimate round-table discussions" and at their conclusion a questionnaire was given to each participant. The answers, Mr. Shaw said, "constitute a useful treatise on business psychology." The employees, he added, showed "not only a keen interest in the problems daily confronting them

when selling passenger transportation . . . but also indicated their desire and determination to render every possible assistance to regular as well as occasional riders." Among the questions included in the questionnaire were: Is the customer always right? Is there danger of a ticket seller of long experience becoming mechanical? Can we apply the same salesmanship principles to our business that prevail with mercantile concerns?

Joint Barge-Rail Rates to Follow Rail Rates

Automatic readjustments of joint barge-rail and rail-barge-rail rates via the routes of the Inland Waterways Corporation in relation to changes made in the all-rail rates are provided for in orders issued by the Interstate Commerce Commission, Division 4, modifying certain provisions of the order in Ex Parte No. 96. The fifth ordering paragraph of the order is amended to read as follows:

"And it is further ordered, That this order shall continue in effect until the further order of the commission, or until the rates, routes, regulations, and practices hereinbefore prescribed are changed by agreement of the interested parties; that the differentials in terms of percentages of all-rail rates hereinbefore prescribed as reasonable minimum differentials between all-rail rates and joint barge-rail or rail-barge-rail rates be maintained regardless of the level of said all-rail rates until the further order of the commission; and that differentials of specific amounts hereinbefore prescribed for barge-rail or rail-barge-rail rates shall be increased or reduced in amounts proportionate to such increases or reductions as may be hereafter applied to all-rail rates on which said barge-rail or rail-barge-rail rates are based."

* * * *



Stencilling Numbers and Names on Some of the 7,000 New Pennsylvania Freight Cars Being Built at the P. R. R. Altoona (Pa.) Shops as Part of Its Employment and Improvement Program, Financed by P.W.A. Loans

Equipment and Supplies

P. W. A. Loans to Railroads

The Public Works Administration has given to the press an estimate that more than 100,000 men and women have been put back to work by the loans which it has made to railroad companies, including 50,000 employed directly by the railroads and as many more engaged in the indirect employment created. The exact number is not known but the estimate is declared to be a conservative one.

New equipment being built with the proceeds of the loans includes 22,395 freight cars, 323 passenger cars, and 179 locomotives, while equipment being repaired includes 1,552 locomotives, 1,956 passenger cars, and 34,961 freight cars.

The P.W.A. has now signed contracts with railroads covering \$189,149,000 of loans and has made allotments totalling \$199,607,000 but its funds available for such loans have now been virtually exhausted.

Public Works Administrator Harold L. Ickes announced on July 13 that he had signed a contract for a loan of \$255,000 to the Gulf, Mobile & Northern which will create employment for its track forces and for men working in industries which will produce 2,150 tons of rail and the necessary fastenings for it, 16,200 cross ties, and 52,000 tons of ballast. This is the third loan to the G. M. & N., the first being for \$210,000 to put the company's shopmen to work on the job of building 100 new freight cars in its shops at Mobile, Ala., and Bogalusa, La., and the second being for \$232,000 for the purchase of 150 new box cars being built by the American Car & Foundry Company in its St. Louis plant. A fourth contract covering a loan of \$519,000 for the purchase of new cars and engines is in course of preparation.

PASSENGER CARS

THE URUGUAYAN STATE RAILWAYS have ordered four rail motor cars from the J. G. Brill Company. Ing. Bautista Lasgoity, president, Montevideo, Uruguay.

THE NORFOLK SOUTHERN has ordered two gasoline rail motor cars from the American Car & Foundry Company and has taken an option on two additional cars.

THE ILLINOIS CENTRAL is inquiring for six cars for its streamlined train to consist of one rail motor car, one baggage, mail and express car, one smoker and coach, one coach, one cafe lounge car and one parlor observation car.

IRON AND STEEL

THE ILLINOIS CENTRAL has ordered 110 tons of structural steel for grade crossing elimination work at Decatur, Ill., from the McClintic-Marshall Company.

THE MISSOURI PACIFIC has ordered 170 tons of structural steel for a bridge at

Dupo, Ill., from the Stupp Brothers Bridge & Iron Company.

MISCELLANEOUS

Air-Conditioning

The Lehigh Valley is now completing work at its own shops on the installation of a mechanical system of air-conditioning in two club cars, three club-dining cars and five dining cars. All the Pullman equipment on the Black Diamond of this road operating between New York and Chicago is now completely air-conditioned. This includes lounge cars and sleeping cars in addition to the diners.

The Baltimore & Ohio has given an additional order to the York Ice Machinery Corporation, York, Pa., for installing a mechanical system of air-conditioning using Freon as a refrigerant, in 31 passenger cars, bringing the total of B. & O. passenger cars air-conditioned by the York Company to more than 300. The order is for 15 coaches and 16 Pullmans, the equipment to be installed at the Mount Clare shops of the railroad company at Baltimore, Md.

Construction

CENTRAL OF NEW JERSEY.—A contract has been given to Richards & Gaston, Inc., Somerville, N. J., at \$90,000 for the construction of a two track, four span, half through plate girder bridge on concrete abutments, column footings, and steel columns, to be built two miles west of Raritan station, Bridgewater township, Somerset county, N. J. The work involves the use of about 265 tons of steel.

NEW YORK & LONG BRANCH.—The New Jersey Board of Public Utility Commissioners has modified its previous order and now directs this road to begin work by August 1 on the construction of a bridge with a 20 ft. roadway, over its tracks at the place where the Laurence Harbor—Morristown road passes over its right-of-way.

PENNSYLVANIA.—Contracts for the construction of a new freight house and a paved delivery yard at Norristown, Pa., have just been let by this road. This is the last step in this road's extensive improvement program which it has had under way in Norristown since 1932. The entire project, now nearing completion, includes the elimination of seven grade crossings by the relocation of the tracks on an elevated structure, the erection of a new passenger station which is about ready for occupancy, and the new freight handling facilities. The freight house will be a one-story structure 27 ft. by 143 ft. of grey brick construction, fronting on DeKalb street and situated 70 ft. back from the line of Lafayette street, with the intervening space paved for a delivery yard. A carload delivery track will be built along Lafayette street, and two other tracks to serve the station.

Supply Trade

National Industrial Advertisers Association

Plans are already well under way for the national conference and convention of the National Industrial Advertisers Association to be held at Cincinnati, Ohio, on September 20, 21 and 22, according to an announcement of William E. McFee, president of the Cincinnati Chapter of the association. The program is in general charge of Gregory H. Starbuck, General Electric Company, Schenectady, N. Y. The other committee members now at work on the details of the arrangements are:

Promotion: William E. McFee, chairman, American Rolling Mill, Middletown, Ohio; Kenneth Hunt, vice-chairman, Champion Coated Paper Company, Hamilton, Ohio; C. F. Wulff, Kirk & Blum, Cincinnati, Ohio; Fred Berling, Lunkenheimer Company, Cincinnati; H. K. Kenyon, American Rolling Mill, Middletown.

Exhibits: H. V. Mercer, chairman, American Rolling Mill, Middletown, Ohio; Charles M. Reese, vice-chairman, Cincinnati Milling Machine, Cincinnati; Oscar Bigler, Baer & Bigler, Cincinnati; Walter Mason, The Bohnett Company, Cincinnati; Walter Spindler, American Rolling Mill Culvert, Middletown; Royal Ryan, ex-officio, Netherland Plaza, Cincinnati.

Entertainment: Alex. Thomson, Jr., chairman, Champion Coated Paper Company, Hamilton, Ohio; Nelson Blair, Eagle Picher, Cincinnati; John M. Krings, Modern Machine Shop, Cincinnati; Colter Rule, Champion Coated Paper Co., Hamilton; Walter Mason, The Bohnett Company, Cincinnati.

Registration: Allan E. Beach, chairman, Littleford Bros., Cincinnati, Ohio; Al. Bicknaver, The Bohnett Company, Cincinnati; Royal Ryan, Netherland Plaza, Cincinnati.

Transportation: C. W. Riefkin, chairman, Newport Rolling Mill, Newport, Ky.; William Heilig, Powell Valve Company, Cincinnati, Ohio; S. C. Baer, Baer & Bigler, Cincinnati.

Publicity: Kenneth Magers, chairman, The Union Gas & Electric Company, Cincinnati, Ohio; George Winter, vice-chairman, Winter & Winter, Cincinnati; E. J. Keck, Dayton Linotyping Company, Dayton; Howard Campbell, Modern Machine Shop, Cincinnati; W. D. Shannon, Allis-Chalmers Company, Cincinnati.

J. E. O'Brien, 135 So. LaSalle street, Chicago, has been appointed administration member on the code authority of the tank car service code.

At a meeting of the stockholders of the **American Car & Foundry Securities Corporation**, New York, on July 12, **Walter J. Cummings** was elected a member of the board of directors.

Thomas L. Mount, of the **Thomas L. Mount Company**, 136 Liberty street, New York, has been appointed representative in Eastern territory for the Dayton-Roderwald V-belt drive, used for air conditioning and lighting of passenger cars

and for endless V-belts, both of which are manufactured by the **Dayton Rubber Manufacturing Company**, Dayton, Ohio.

The **Standard Steel Car Corporation** has purchased the **Canton Car Company**, Canton, Ohio and will continue to operate the plant with its present organization, headed by **G. J. Whalen**, general manager.

Malcolm E. Gregg, assistant district sales manager of the **Inland Steel Company**, with headquarters at Milwaukee, Wis., has been promoted to district sales manager to succeed **Harry L. McCauley**, deceased.

Stanley A. Knisely, who has been promoted to sales promotion and advertising manager of the **Republic Steel Corporation**, will have his headquarters at Youngstown, Ohio. Mr. Knisely entered newspaper work in his home city at Canton, Ohio, and later held the positions of



Stanley A. Knisely

city editor and telegraph editor of the **Cleveland Plain Dealer**. He left that field to become advertising and sales manager of the **National Paving Brick Association**, with headquarters at Cleveland, Ohio. After six and a half years in that position Mr. Knisely became director of advertising research for the **National Association of Flat Rolled Steel Manufacturers** and served seven years in that capacity.

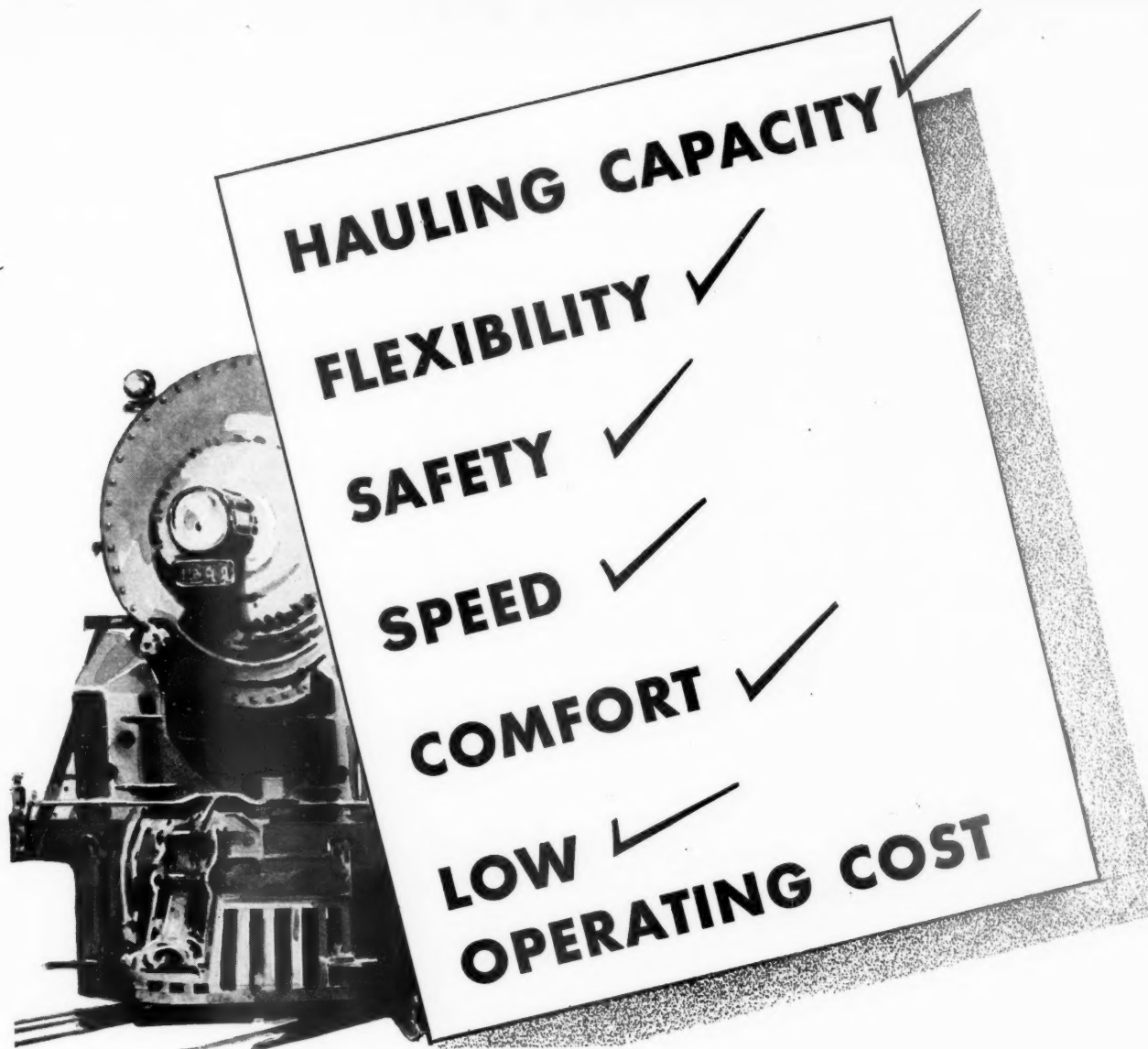
OBITUARY

H. Leon Fuller, district manager of the **Westinghouse Air Brake Company**, with headquarters at Denver, Colo., died suddenly in that city on July 8.

L. W. Hostettler, manager of alloy sales, **Allegheny Steel Company**, Brackenridge, Pa., died on July 10 from injuries received in an automobile accident near Waukegan, Ill.

Edmund K. Swigart, vice-president of the **Bucyrus-Erie Company**, South Milwaukee, Wis., died at Ballard Lake, Wis., on July 7. He was born in Bucyrus, Ohio, on April 16, 1867, and, after a high-school education, was employed in railroad mail service for 10 years. He entered the employ of the **Bucyrus-Erie Company** in 1891 and was appointed secretary and treasurer in 1901. In 1910, he was made

Continued on next left-hand page



Today steam power alone can meet all these fundamental requirements.

The great advances in the design and building of steam locomotives in the last few years have made this true for all classes of railway service.



a joint managing director of the company, and, in 1911, was made senior vice-president, a position he held until his death. He was also a member of the Executive committee and board of directors of the Bucyrus-Erie Company, a member of the board of directors of the Bucyrus-Monighan Company and chairman of the board of directors of the Oilgear Company.

John E. Barkle, general manager of the South Philadelphia Works of the Westinghouse Electric & Manufacturing Company, died suddenly at his home in Swarthmore, Pa., on July 10 at the age of 53. Mr. Barkle was born at Orbisonia, Pa., and was a graduate of Dickinson College; and had been continuously in the service of Westinghouse for 33 years.

TRADE PUBLICATIONS

LOCOMOTIVE AND CAR SCRAPPING.—Detailed data on methods and results of scrapping cars and locomotives on three different railroads are given in an illustrated booklet issued by the Air Reduction Sales Company, Lincoln building, New York.

INSULATED CABLE.—An 80-page reference, entitled "How to Select Insulated Cable," has been published by the General Electric Company. The publication covers cable for the transmission and distribution of electric power at normal frequencies, and presents in convenient form the information that is required in determining the cable best adapted for a particular installation.

TRANSITE ELECTRICAL CONDUIT.—A bound set of engineering data sheets has been prepared by Johns-Manville, New York, N. Y., which includes a discussion of properties of Transite conduit, information on sizes, weights, prices, details and dimensions of fittings, a description of installation methods and a specification for the material. Transite is made of asbestos fibre and Portland cement, has high mechanical strength, is fire-proof and corrosion resistant.

LAMINATED BAKELITE.—The Synthane Corporation, Oaks, Pa., has announced a pocket-size booklet which describes the properties, characteristics, colors, sizes, grades and thicknesses of Synthane or laminated Bakelite, made by this company. Samples of the product are contained in paper envelopes attached to the pages of the booklet. Products made from this material including sheets, rods, tubes and fabricated parts are also described and illustrated.

BELTS FOR POWER TRANSMISSION.—A small booklet in pocket size, entitled "Short Cuts to Power Transmission," has been published by the Flexible Steel Lacing Company, Chicago, Ill. The booklet describes characteristics of various types of flat and V-belt drives, treats the use and care of belts and emphasizes particularly the points to be considered in making good belt joints with various types of fasteners. Data are also included on horsepower transmission, use of jack shafts, cause of belt troubles and relative merits of group vs. unit drives.

Financial

BALTIMORE & OHIO.—*Private Financing Resumed With R. F. C. Help.*—Jesse H. Jones, chairman of the Reconstruction Finance Corporation, announced on July 13 that this company had arranged with its bankers, Kuhn, Loeb & Co., and Speyer & Co., for the sale, as agents for the road, of \$50,000,000 of five-year 4½ per cent secured notes at par and accrued interest. The proceeds will be utilized to pay, at maturity on August 10, \$17,500,000 of two-year 6 per cent notes held by the public, \$25,500,000 due the R. F. C., and for other corporate purposes, including payment of temporary bank loans aggregating \$4,275,000, the latter sum being the company's entire indebtedness of this character. The bankers' charge, including expenses incident to offering the issue, is to be one per cent of the face value of the notes sold by them. The R. F. C. has agreed, subject to approval of the Interstate Commerce Commission, to lend the Baltimore & Ohio at the same rate and terms any part of the issue that the bankers do not sell—that is, at 99 per cent of the face value of the notes, or at a gross cost to the railroad company of 4.7 per cent. The company had tentatively arranged with the bankers for an issue of \$25,000,000 of notes at a cost to it of 5½ per cent but Chairman Jones of the R. F. C., taking the position that this was too high, offered to make the loan at not more than 5 per cent and to renew the \$25,500,000 maturity. In his announcement of the new arrangement he said that "by handling these notes on this basis the bankers are co-operating with the administration in reducing interest rates." The negotiations, which had been under way for several weeks, were concluded in New York by Chairman Jones for the R. F. C., G. M. Shriver, senior vice-president of the B. & O., and George W. Bovenizer for the bankers.

The present approximate market value of the collateral securing the issue is 170 per cent of the loan and consists of: 232,000 shares (par value \$11,600,000.) first preferred stock of the Reading Company; 332,000 shares (par value \$16,600,000.) second preferred stock of the Reading Company (each share being convertible, at option of the Reading Company, into one-half share first preferred stock and one-half share common stock); 566,000 shares (par value \$28,300,000.) common stock of the Reading Company; \$38,000,000. refunding and general mortgage 6 per cent Bonds, Series "E," due April 1, 2000, of the Baltimore & Ohio. The dividends as presently being paid by the Reading on the stock which in part secures this issue, exceed the interest requirements on these notes.

In its formal application the B. & O. pointed out that the present value of the collateral is \$181,308,850 and that the plan would reduce its total indebtedness to the R. F. C. from \$72,124,423 to \$46,625,000, which would be secured by collateral having a value of \$85,934,275.

CHICAGO GREAT WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon

a branch line extending from Eden, Minn., to Mantorville, 6.9 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Interest.*—The protective committee for this company's first and refunding mortgage 4 per cent bonds (due 1934) and its secured series A 4½ per cent bonds (due 1952) has issued a statement reading in part as follows:

"On June 26, 1934, the United States District Court in Chicago ordered the trustees of the railway company to pay the January 1, 1934, interest on the railway company's \$99,981,000 of general mortgage 4 per cent gold bonds, with six months' interest on such interest at the rate of 4 per cent per annum, equivalent to a total of \$20.40 for each \$1,000 bond.

"The trustees for the first and refunding mortgage 4 per cent gold bonds will disburse on August 1, 1934, from the interest received on the \$38,400,000 of general mortgage bonds pledged with them (after deducting their fees and certain of their expenses) \$4.74 in respect of the October 1, 1933, interest on each \$1,000 principal amount of the \$163,000,000 of first and refunding mortgage 4 per cent gold bonds.

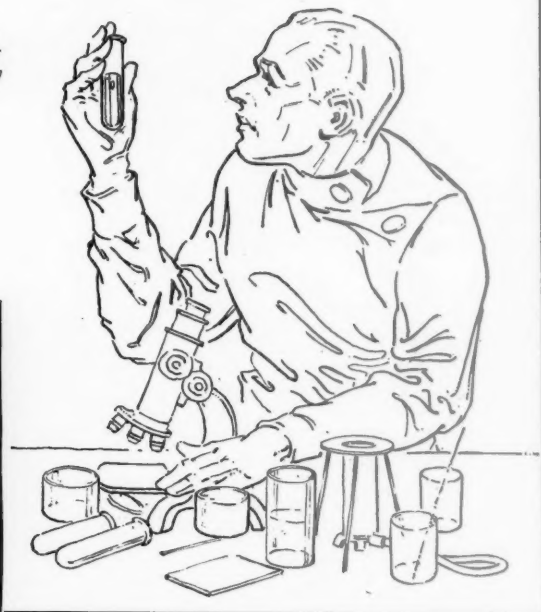
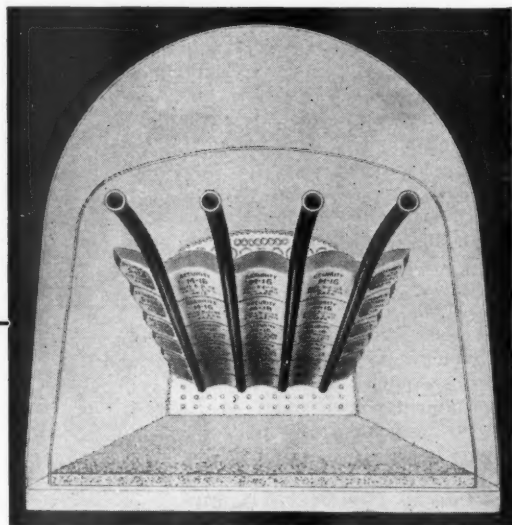
"The trustee under the indenture for the secured 4½ per cent gold bonds will receive such partial interest payment on the \$45,000,000 of first and refunding mortgage 4 per cent gold bonds pledged with it, and on August 8, 1934, will disburse out of such funds (after deducting its fees and certain of its expenses) \$4.94 in respect of each \$1,000 principal amount of the \$40,000,000 of secured 4½ per cent gold bonds.

"Because of the provisions of this Indenture, approximately \$4.66 of the amount to be distributed in respect of each \$1,000 secured 4½ per cent gold bond, all of which were declared due by the trustee on May 4, 1934, will be distributed as principal and approximately \$.28 as interest; and such total interest distribution will be made in respect of the September 1, 1933, March 1, 1934, and September 1, 1934, coupons, and interest thereon and on the overdue principal."

Holders of the first and refunding and the secured bonds who deposited them with the committee which is headed by Dwight S. Beebe of the Mutual Life Insurance Company, will receive checks for the full amounts collected by the committee on their holdings. Although transfer books of the committee's depositories will be closed from July 23 to Aug. 1 for the first and refunding bonds and from Aug. 1 to Aug. 8 for the secured bonds, the committee will continue to accept deposits of both bonds in these periods and will collect the payments on them.

COWLITZ, CHEHALIS & CASCADE RAILWAY.—*Reorganization.*—This corporation has been reorganized, and has resumed operation of the railroad. The receivership in effect subsequent to March 7, 1932, has been terminated. All unsettled business of the Railway, and all unsettled claims filed with the Receiver have been taken over by the corporation for disposition. The reorganization committee provided funds to purchase all outstanding capital stock and pay all accepted liabilities and expenses of receivership. It obtained for cancellation all outstanding bonds and other securities

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Every major improvement in locomotive Arches since Arch brick was first sectionalized has been brought to the railroads by American Arch Company.

As part of its service to the railroads, the American Arch Company, for 25 years, has experimented constantly to improve Arch Brick material and design.

Metallic re-inforced Arches; air-induction

Arches; light-weight materials; unusual mixes including non-refractory materials — all of these and many more have been carefully considered and their merits weighed.

American Arch Company is constantly conducting research and experiment in its policy to supply American railroads with the finest of Locomotive Arches.

**HARBISON-WALKER
REFRACTORIES CO.**

Refractory Specialists



**AMERICAN ARCH CO.
INCORPORATED**

*Locomotive Combustion
Specialists* » » »

and accrued interest, together with reorganization funds, for exchange for a pro rata proportion of the \$425,000 stock. The bonds cancelled and the mortgage satisfied.

GREAT NORTHERN.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Rexford, Mont., to the international boundary, 8.4 miles.

JACKSONVILLE TERMINAL.—Valuation.—The Interstate Commerce Commission has issued a final valuation report finding the final value for rate-making purposes as of December 31, 1928, to be \$6,885,000.

LITCHFIELD & MADISON.—Bonds.—This company has applied to the Interstate Commerce Commission for authority to issue \$1,000,000 of first mortgage 5 per cent sinking fund bonds, to be dated November 1, 1934, and to mature November 1, 1959, to pay a like amount of outstanding bonds maturing November 1. Arrangements have been made for the sale of the bonds to Stifel Nicolaus & Co., Inc., of St. Louis, at 92½.

MINNEAPOLIS & ST. LOUIS.—Abandonment and Trackage Rights.—The Interstate Commerce Commission has authorized the receiver of this company to purchase and operate that portion of the Chicago, Burlington & Quincy, between Oskaloosa, Iowa, and Tracy, 13.9 miles and that portion of the Burlington between Martinsburg and Coppock, 30.5 miles; to operate under trackage rights for freight traffic only over the Burlington between Tracy and Des Moines, 48.8 miles; to abandon operation under trackage rights over the Chicago, Rock Island & Pacific, between Oskaloosa and Des Moines, 63.4 miles; and to construct necessary connecting tracks. The Burlington is authorized to abandon that portion of its line between Winfield and Coppock, 16.6 miles, and that portion between Martinsburg and Oskaloosa, 22 miles. The authorization permits abandonment by the Burlington of operation between Winfield and Tracy, 83 miles, and substitutes operation by the Minneapolis & St. Louis, which abandons operation under trackage rights over the Rock Island between Oskaloosa and Des Moines, 63.4 miles.

MISSOURI-KANSAS BELT RAILWAY & TERMINAL COMPANY.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire by purchase securities of the Imperial Terminal Building Company—\$3,500,000 of first mortgage bonds for \$2,100,000 and 14,000 shares of common stock for \$350,000.

NEW YORK CENTRAL.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon part of its Lockport branch, from Beach Ridge to Lockport Junction, N. Y., 6 miles.

NORFOLK & WESTERN.—Abandonment.—Examiner R. R. Molster of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of a branch line

from Speedwell Junction, Va., to Speedwell, 16.45 miles, but that the commission deny the application as to the branch line from Reed Junction, Va., to Baker, 12.24 miles.

PENNSYLVANIA.—Bonds.—The Interstate Commerce Commission has authorized the Cleveland & Pittsburgh to issue \$653,000 of general and refunding mortgage, 4½ per cent, series "B" bonds, to be delivered to the Pennsylvania, in settlement of indebtedness. Similar authority has been granted to the Pennsylvania, Ohio & Detroit to issue \$1,214,000 of first and refunding mortgage, series "C" 4½ per cent bonds, to be delivered to the parent company, which, in the case of both issues, is authorized to assume liability as guarantor.

PERE MARQUETTE.—Abandonment.—Examiner C. P. Howard of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of the line from Elmdale, Mich., to Freeport, 6.19 miles.

ST. LOUIS-SAN FRANCISCO.—Trackage Rights.—The Interstate Commerce Commission has authorized this company and its trustees to operate under trackage rights over approximately one-half mile of the Illinois Central in Memphis, Tenn., in order to reach the passenger terminal of the latter company, in the use of which it participates and which use has been governed by a contract which expired at the end of 1931.

UNION PACIFIC.—Abandonment.—The Interstate Commerce Commission has authorized the Los Angeles & Salt Lake to abandon approximately two miles of its old San Pedro branch in Los Angeles, Cal., and Long Beach.

WABASH.—Interest Payment.—The payment of \$349,825 semi-annual interest to August 1 on second mortgage bonds of the Wabash has been authorized by Federal Judge Davis. The interest of \$847,275, which was due May 1 on the first mortgage bonds, was paid with the court's approval. The receivers at that time said that funds on hand were sufficient for the payment and that no further borrowing would be needed.

WESTERN MARYLAND.—Abandonment.—The Interstate Commerce Commission has authorized this company to abandon a branch line, extending from a point near Emoryville, W. Va., to Hartmansville, 3.2 miles.

Dividends Declared

Northern R. R. of New Hampshire.—\$1.50, quarterly, payable July 31 to holders of record July 9.
Virginian.—Preferred, \$1.50, quarterly, payable August 1 to holders of record July 14.

Average Prices of Stocks and of Bonds

	July 17	Last week	Last year
Average price of 20 representative railway stocks..	40.69	42.65	51.35
Average price of 20 representative railway bonds..	77.70	77.84	75.34

Railway Officers

EXECUTIVE

C. S. Fay, vice-president and traffic manager of the Southern Pacific Lines in Texas and Louisiana, with headquarters at Houston, Tex., will retire on August 1. Mr. Fay has been connected with the Southern Pacific for 45 years. He was born on October 23, 1867, at Minden, La., and was educated at Silliman Institute and at Louisiana State University. He entered railway service in 1889 as a clerk in the traffic department of the Atlantic System of the Southern Pacific. During the next 28 years, Mr. Fay occupied various positions in the traffic department, including those of chief rate clerk, chief clerk, assistant general freight agent and general freight agent in charge of the Louisiana



C. S. Fay

Lines. In 1917 he was advanced to traffic manager of the Louisiana Lines and during federal control of the railroads he served as general freight agent of the Southern Pacific Lines and the Gulf Coast Lines and as chairman of the New Orleans Western District Freight Traffic Committee. In March, 1920, Mr. Fay returned to the Southern Pacific as traffic manager of the Louisiana Lines with headquarters at New Orleans, La., and in 1928 his jurisdiction was extended over the Texas Lines, his headquarters being moved to Houston. Since 1929, Mr. Fay has been vice-president and traffic manager of the Southern Pacific Lines in Texas and Louisiana.

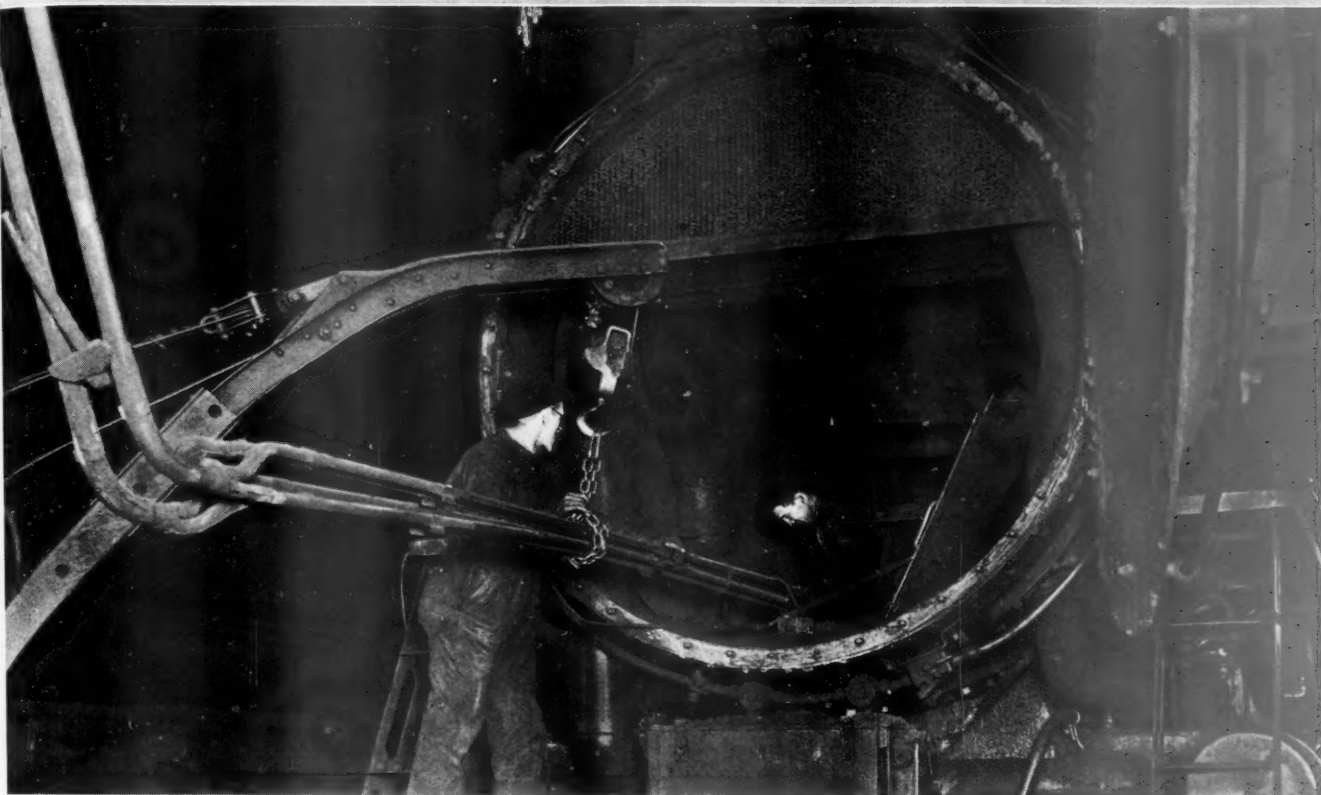
OPERATING

R. D. Day has been appointed trainmaster, Kansas City Terminal division, of the Missouri Pacific with headquarters at Kansas City, Mo.

Mason B. Osburn, general storekeeper of the Pullman Company, with headquarters at Chicago, has been promoted to assistant general manager, succeeding John T. Ranson, who has retired. **A. M. Mayer**, assistant district superintendent at Seattle, Wash., has been promoted to district superintendent at the same point, succeeding H. M. Allen, who has retired.

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A Locomotive Pulls a Train *Best*



When the Superheater Is *in Good Condition*

NO matter how carefully the locomotive is groomed in the roundhouse before each trip or how well it is repaired at periodical shoppings, unless the superheater has been given the attention it requires, the locomotive may fail to give the full service it was designed for. Efficiency and reliability of locomotive performance are largely dependent on the condition of the superheater units.

Superheater units when new are designed to meet specific superheating requirements. Surfaces, areas, and proportions have been scientifically determined to assure unrestricted passage of gases and steam for maximum heat transfer.

These are retained to precision limitations by a construction developed from world-wide research and experience with locomotive superheaters.

Through constant service superheater units in time fail or become unserviceable. They then need the same attention as is given fireboxes, tubesheets, flues, and other boiler parts subject to similarly severe conditions — they should be re-

newed. And there is just one way to do this: have them rebuilt during each shopping period by the Elesco unit remanufacturing service . . . the one method by which they are restored to a condition practically equal to new units.

The Elesco unit remanufacturing service maintains the high standard superheater condition so necessary to move trains quickly and economically.

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, Inc.



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NEW YORK



Peoples Gas Building
CHICAGO

A-889

Canada: The Superheater Company, Limited, Montreal

Superheaters - Feed Water Heaters - Exhaust Steam Injectors - Superheated Steam Pyrometers - American Throttles

H. A. Hudwalker, service inspector, has been promoted to district superintendent at Louisville, Ky., succeeding **W. R. Parkes**, deceased.

TRAFFIC

George Herbert, assistant to vice-president of the Delaware, Lackawanna & Western, with headquarters at New York, has been promoted to assistant freight traffic manager with same headquarters. Mr. Herbert has been in the service of the Delaware, Lackawanna & Western since 1907, with the exception of a furlough for war service. A sketch and photograph of Mr. Herbert appeared in the *Railway Age* of September 16, 1933, in connection with the announcement of his appointment as assistant to vice-president.

W. W. Hale, general freight agent on the Southern Pacific, Pacific Lines, with headquarters at Portland, Ore., has been promoted to general freight traffic manager of the Southern Pacific Lines in Texas and Louisiana, with headquarters at Houston, Tex., succeeding **C. S. Fay**, vice-president and traffic manager, who has retired. **Herman W. Klein**, general freight agent at San Francisco, has been transferred to Portland to replace Mr. Hale. **D. J. McGanney**, assistant to vice-president (sys-



W. W. Hale

tem freight traffic), at San Francisco, has been appointed general freight agent at that point to succeed Mr. Klein, and **A. I. Hoskins**, assistant to freight traffic manager (rates and divisions), has been promoted to assistant to vice-president to replace Mr. McGanney. **J. L. Fielding**, assistant general freight agent at San Francisco, has been appointed assistant to freight traffic manager to succeed Mr. Hoskins. Mr. Fielding has been replaced as assistant general freight agent by **F. C. Nelson**, acting assistant general freight agent. These changes will become effective on August 1.

Mr. Hale has been connected with the Southern Pacific for more than 33 years. He first entered the service of the company in 1901 as a clerk in the general passenger office at San Francisco. Three years later he was transferred to the office of the superintendent of transportation and in 1917 he was advanced to eastern car service agent with headquarters at Chicago. During federal control of the railroads Mr. Hale was assistant manager of the

refrigerator department of the Car Service section of the United States Railroad Administration. With the termination of government control of the railroads in 1920, he returned to the service of the Southern Pacific as general agent at Detroit. In April, 1929, Mr. Hale was advanced to assistant to the freight traffic manager, with headquarters at San Francisco. Since January, 1932, he has served as general freight agent at Portland.

PURCHASES AND STORES

F. S. Rick, assistant general storekeeper of the Pullman Company, has been promoted to general storekeeper, with headquarters at Chicago, succeeding **Mason B. Osburn**, promoted.

F. C. Turner, who has been appointed assistant general storekeeper of the Northern Pacific, with headquarters at South Tacoma, Wash., as noted in the *Railway Age* of June 30, has been connected with this company for 32 years. He was born on January 22, 1884, at New York, and entered railway service in April, 1902, with the Northern Pacific, serving in various clerical positions until August, 1910, when he was made division storekeeper at Duluth, Minn. Subsequently Mr. Turner served in the same capacity at Pasco, Wash., and Missoula, Mont., and in October, 1920, he was appointed traveling storekeeper on the Western district. He was holding the latter position at the time of his recent promotion to assistant general storekeeper.

C. T. Coleman, who has been appointed purchasing agent of the Atlanta, Birmingham & Coast with headquarters at Atlanta, Ga., as reported in the *Railway Age* of June 23, was born in May, 1894, and attended Georgia Military College at Milledgeville, Ga. He entered the service of the Atlanta, Birmingham & Atlantic (now the A. B. & C.) in December, 1910, holding various clerical positions in the accounting department until February, 1913. He served in the general claim agent's office from the latter date to September, 1915, when he returned to the accounting department as station accountant. In March, 1917, he was appointed traveling auditor and in January, 1925, storekeeper. Mr. Coleman was promoted to general storekeeper in January, 1930, which position he held until his recent appointment as purchasing agent.

OBITUARY

B. A. Worthington, who retired in 1923 as president and chairman of the board of the Cincinnati, Indianapolis & Western (now part of the Baltimore & Ohio), died on July 18 at Los Angeles, Calif.

Richard J. McCarty, who retired in 1918 as vice-president of the Kansas City Southern, died on June 16 at his home in Kansas City, Mo., at the age of 83 years. Mr. McCarty was born at Clarksburg, W. Va., on March 21, 1851, and studied engineering at Soule University in Texas and at the University of Virginia. After a number of years of railroad and street railway service and in engineering practice,

Mr. McCarty entered the service of the K. C. S. in 1887 as general auditor. He was elected vice-president in 1907, which position he held until his retirement in 1918.

Eugene Phelps, tax commissioner of the Kansas City Southern, died on July 4 at St. Mary's hospital at Kansas City, Mo. Prior to entering the service of the Kansas City Southern in January, 1894, Mr. Phelps served for a short time with the Kansas City, Ft. Scott & Memphis (now part of the St. Louis-San Francisco). His first service with the K. C. S. was as station agent at Richards, Mo., later being transferred to Neosho, Mo. He was then advanced successively through the positions of traveling auditor, division agent, trainmaster and tax commissioner.

Ray M. Allen, assistant electrical engineer of the Delaware, Lackawanna & Western, died July 14, at the Moses Taylor Hospital, Scranton, Pa., following an operation for appendicitis. He was born March 16, 1898, in Louisiana. He enlisted in the U. S. Navy June 26, 1917 and was discharged September 18, 1919. On April 10, 1920, he joined the Commonwealth Edison Company, Chicago. He entered railroad service on the Illinois Central April 10, 1924, at which time that railroad was engaged in electrifying its lines

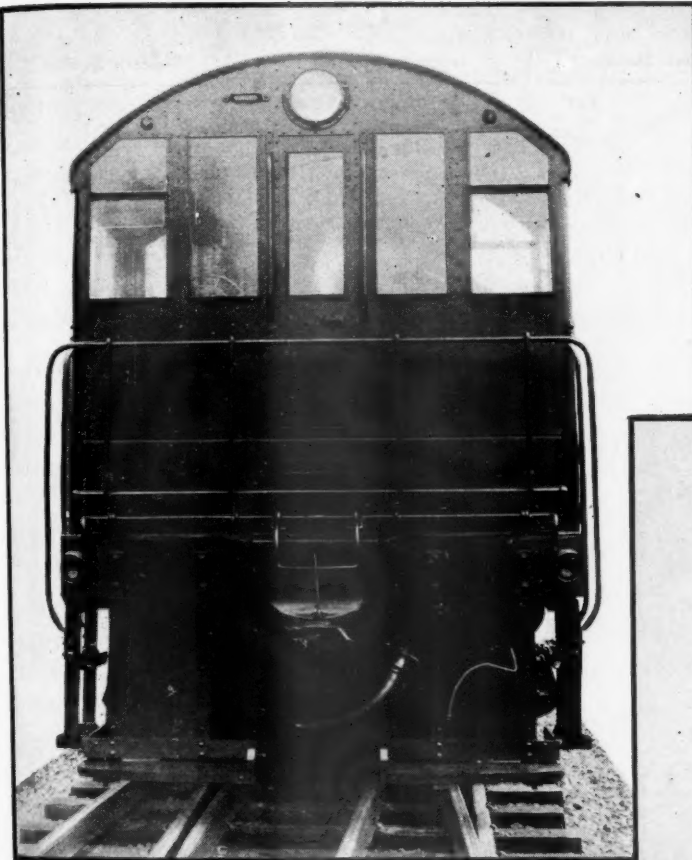


Ray M. Allen

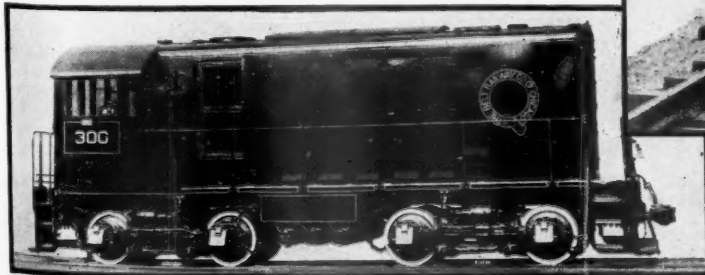
in the Chicago Terminal district. On June 24, 1929, he left the Illinois Central and entered the service of Jackson & Moreland, consulting engineers for the Lackawanna electrification. On April 1, 1930, he was appointed general foreman, electrical traction, D.L. & W. Later he was promoted to assistant electrical engineer, which position he held at the time of his death.

Theodore H. Curtis, formerly a mechanical officer on a number of railroads and more recently a consulting engineer on railroad mechanical matters at Chicago, died on July 15 in that city following a long illness. Mr. Curtis was born on August 12, 1866, at Terre Haute, Ind., and was educated at Rose Institute of Technology in that city. He entered railway service in 1886 as chief mechanical draftsman on the Cincinnati, Indianapolis, St. Louis & Chicago (now part of the Cleveland, Cincinnati, Chicago & St. Louis), then serving successively as a draftsman for the Brooks Locomotive Works and the Pittsburgh Locomotive Works. He re-

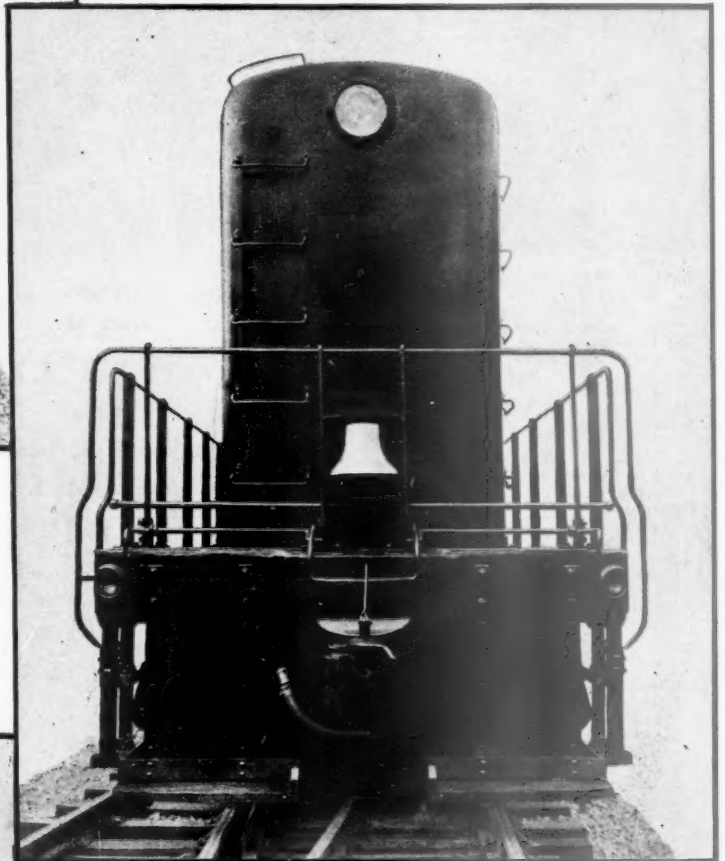
RAILROAD DIESELS FOR RAILROAD MEN



The hood part of the Alco Diesel locomotive is only wide enough to cover the Diesel engine. This reduction in width tremendously increases the operator's visibility in this direction. In fact, the operator has sufficient visibility in all directions to catch all signals from the ground crew without leaving his position at the control stand.



No question regarding the amount of visibility when looking through the windows at the cab end — the photograph speaks for itself. But a side view of the Alco Diesel locomotive might easily deceive one regarding the amount of visibility when looking toward the hood end.



This advertisement is No. 7 of a series showing the attractive features which make the Alco Diesel such an outstanding purchase.

AMERICAN LOCOMOTIVE COMPANY
ALCO DIESEL
30 CHURCH STREET NEW YORK N.Y.

entered railway service in June, 1889, as chief draftsman on the New York, Chicago & St. Louis, being advanced to mechanical engineer of this company in 1897. Two years later he went with the Erie as mechanical engineer and in January, 1901, he

entered the service of the Louisville & Nashville in the same capacity. In August, 1903, Mr. Curtis was advanced to superintendent of machinery of the L. & N. leaving this company in July, 1911, to become mechanical engineer for the Com-

mittee on Investigation of Smoke Abatement and Electrification of Railway Terminals of the Chicago Association of Commerce. Since February, 1915, he had been a consulting railroad engineer in private practice at Chicago.

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from 148 Monthly Reports of Revenues and Expenses Representing 149 Class I Steam Railways

FOR THE MONTH OF MAY, 1934 AND 1933

Item	United States		Eastern District		Southern District		Western District	
	1934	1933	1934	1933	1934	1933	1934	1933
Average number of miles operated	239,059.20	240,981.36	59,108.02	59,495.07	45,448.82	45,793.39	134,502.36	135,692.90
Revenues:								
Freight	\$228,587,199	\$207,477,670	\$102,037,478	\$86,671,212	\$44,496,310	\$42,176,159	\$82,053,411	\$78,630,299
Passenger	26,575,372	23,910,605	16,074,600	14,490,438	3,181,451	2,752,842	7,319,321	6,667,325
Mail	7,562,263	7,636,503	2,950,253	2,993,903	1,331,989	1,328,308	3,280,021	3,314,292
Express	7,094,066	5,491,153	2,860,601	2,125,842	1,525,980	1,294,671	2,707,485	2,070,640
All other transportation	6,457,828	6,084,135	3,424,552	3,357,274	595,470	533,606	2,437,806	2,193,255
Incidental	5,152,243	4,164,230	2,825,922	2,344,714	769,448	633,649	1,556,873	1,185,867
Joint facility—Cr.	750,354	637,064	225,408	200,307	192,676	170,471	332,270	266,286
Joint facility—Dr.	155,661	159,983	45,833	48,981	17,343	15,470	92,485	95,532
Railway operating revenues	282,023,664	255,241,377	130,352,981	112,134,709	52,075,981	48,874,236	99,594,702	94,232,432
Expenses:								
Maintenance of way and structures	35,048,894	27,322,978	13,563,655	10,167,527	6,308,629	5,488,150	15,176,610	11,667,301
Maintenance of equipment	56,793,470	46,933,372	25,912,664	20,611,512	10,627,002	8,929,623	20,253,804	17,392,237
Traffic	7,525,415	7,088,271	2,826,029	2,600,883	1,364,544	1,351,523	3,334,842	3,135,865
Transportation	96,579,638	86,841,836	45,667,796	39,869,449	16,366,880	14,900,290	34,544,962	32,072,097
Miscellaneous operations	2,057,564	1,704,601	1,018,684	852,100	235,183	191,613	803,697	660,888
General	12,250,959	11,825,927	5,386,740	5,017,374	2,077,237	2,088,169	4,786,982	4,720,384
Transportation for investment—Cr.	244,939	138,557	50,093	42,176	32,400	15,634	162,446	80,747
Railway operating expenses	210,011,001	181,578,428	94,325,475	79,076,669	36,947,075	32,933,734	78,738,451	69,568,025
Net revenue from railway operations	72,012,663	73,662,949	36,027,506	33,058,040	15,128,906	15,940,502	20,856,251	24,664,407
Railway tax accruals	21,872,345	22,026,847	9,312,109	9,196,892	4,345,115	4,154,197	8,215,121	8,675,758
Uncollectible railway revenues	117,273	79,533	73,089	40,697	10,431	12,784	33,753	26,052
Railway operating income	50,023,045	51,556,569	26,642,308	23,820,451	10,773,360	11,773,521	12,607,377	15,962,597
Equipment rents—Dr. balance	7,564,542	7,489,034	3,796,023	3,460,820	748,631	963,701	3,019,888	3,064,513
Joint facility rent—Dr. balance	2,963,525	3,024,906	1,640,699	1,654,013	363,704	363,798	959,122	1,007,095
Net railway operating income	39,494,978	41,042,629	21,205,586	18,705,618	9,661,025	10,446,022	8,628,367	11,890,989
Ratio of expenses to revenues (per cent)	74.47	71.14	72.36	70.52	70.95	67.38	79.06	73.83
† Includes:								
Depreciation	15,467,684	14,995,177	6,882,007	5,937,894	2,895,772	3,004,018	5,689,905	6,053,265
Retirements	345,205	1,064,894	98,602	844,763	190,706	97,662	55,897	122,469

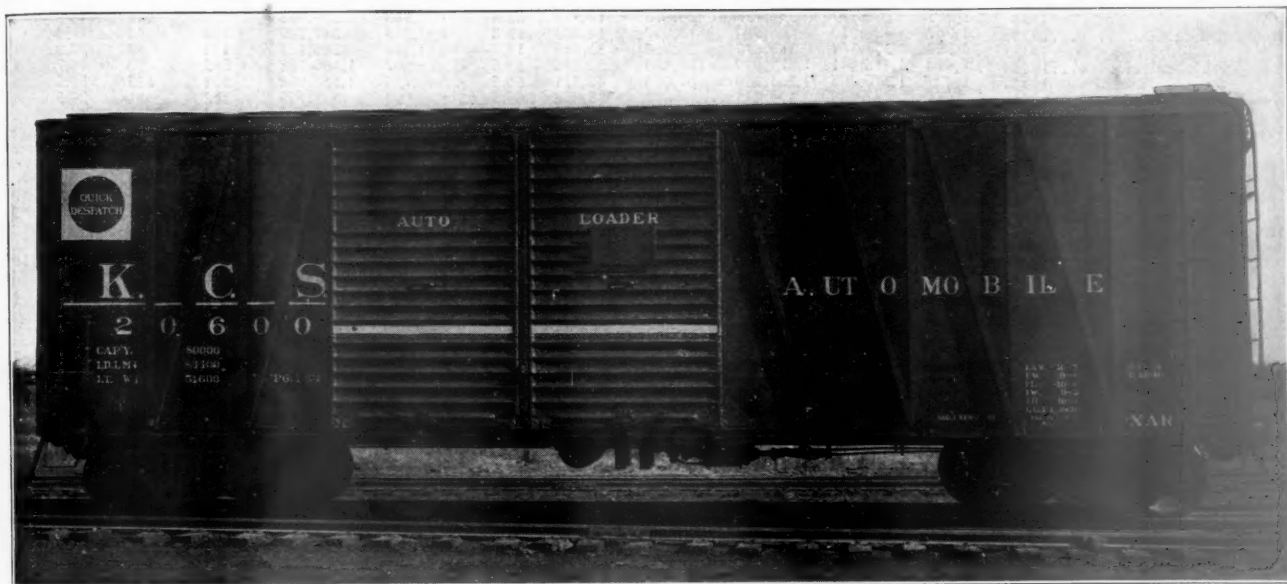
FOR FIVE MONTHS ENDED WITH MAY, 1934 AND 1933

Average number of miles operated	239,303.47	241,232.88	59,138.43	59,544.69	45,468.47	45,852.09	134,696.57	135,836.10
Revenues:								
Freight	\$1,094,278,773	\$911,467,069	\$489,425,476	\$389,776,616	\$225,210,200	\$194,615,140	\$379,643,097	\$327,075,313
Passenger	133,636,375	119,021,364	81,132,764	72,226,542	18,931,767	15,509,352	33,571,844	31,285,470
Mail	37,666,696	37,637,520	14,642,470	14,773,196	6,647,821	6,407,740	16,376,405	16,366,584
Express	23,988,802	17,900,123	9,722,386	7,356,147	5,724,792	4,206,911	8,541,624	6,337,065
All other transportation	30,380,806	27,890,390	16,135,713	15,838,384	3,016,545	2,505,127	11,228,548	9,546,879
Incidental	24,384,950	20,682,406	13,464,400	11,930,247	3,900,583	3,154,871	7,019,967	5,597,288
Joint facility—Cr.	3,612,755	3,219,418	1,164,987	1,065,395	810,998	687,277	1,636,770	1,466,744
Joint facility—Dr.	915,275	906,413	250,446	260,045	76,799	86,550	588,030	559,818
Railway operating revenues	1,347,033,882	1,136,911,877	625,437,750	512,706,482	264,165,907	227,089,868	457,430,225	397,115,527
Expenses:								
Maintenance of way and structures	143,971,691	118,694,562	58,435,945	46,363,558	29,230,112	25,114,298	56,305,634	47,216,706
Maintenance of equipment	272,689,108	230,628,668	125,918,758	101,643,330	51,000,079	43,986,011	95,770,271	84,999,327
Traffic	36,492,551	35,387,158	13,721,427	13,079,360	7,008,149	6,852,820	15,762,975	15,454,978
Transportation	480,133,976	431,024,794	230,401,141	199,479,674	81,392,555	73,737,111	168,340,280	157,808,009
Miscellaneous operations	10,627,894	9,005,796	5,340,280	4,563,019	1,430,612	1,141,071	3,857,002	3,301,706
General	60,883,370	60,043,662	26,701,327	25,808,333	10,334,142	10,134,244	23,847,901	24,101,085
Transportation for investment—Cr.	909,052	1,168,609	242,668	535,561	100,957	146,583	565,427	486,465
Railway operating expenses	1,003,889,538	883,616,031	460,276,210	390,401,713	180,294,692	160,818,972	363,318,636	332,395,346
Net revenue from railway operations	343,144,344	253,295,846	165,161,540	122,304,769	83,871,215	66,270,896	94,111,589	64,720,181
Railway tax accruals	106,444,794	109,042,307	44,048,998	44,065,544	21,632,120	21,495,703	40,763,676	43,481,660
Uncollectible railway revenues	485,937	407,162	262,654	168,259	78,229	49,954	145,054	188,949
Railway operating income	236,213,613	143,846,377	120,849,888	78,070,966	62,160,866	44,725,239	53,202,859	21,050,172
Equipment rents—Dr. balance	37,266,243	34,301,947	18,712,240	16,850,962	3,405,766	3,292,023	15,148,237	14,158,962
Joint facility rent—Dr. balance	14,969,731	14,626,032	8,293,137	7,760,098	1,815,132	1,692,517	4,861,462	5,173,417
Net railway operating income	183,977,639	94,918,398	93,844,511	53,459,906	56,939,968	39,740,699	33,193,160	1,717,793
Ratio of expenses to revenues (per cent)	74.53	77.72	73.59	76.15	68.25	70.82	79.43	83.70
† Includes:								
Depreciation	77,440,305	74,715,024	34,173,240	29,180,999	14,523,109	15,035,146	28,743,956	30,498,879
Retirements	1,936,825	4,992,112	531,628	4,212,723	715,687	301,061	689,510	478,328

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.

Table of Operating Statistics of Railways begins on next left-hand page

NATIONAL TYPE "B" TRUCK



Easy Riding Protects Lading
Spring Plank Eliminated
Quick Wheel Change
Light Weight



All-Coil and "Coileaf"
Springs are interchangeable
in National Type "B" Trucks

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Office — Cleveland, O.

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of May,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line			
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross Excluding locomotives and tenders	Net Revenue and non-revenue	Servicable	Un-servicable	Per cent un-servicable	Stored
New England Region:												
Boston & Albany.....1934	402	129,123	133,469	9,657	3,332	66.3	173,271	55,547	62	39	39.0	15
1933	402	112,086	118,553	8,858	3,185	67.5	160,708	51,405	55	51	48.2	15
Boston & Maine.....1934	2,022	267,348	305,383	30,726	9,692	68.6	521,237	195,053	124	153	55.2	20
1933	2,059	243,904	273,590	23,902	8,669	69.8	436,806	155,821	118	166	58.5	18
N. Y., New H. & Hartf.....1934	2,044	362,063	437,749	20,786	11,443	64.6	625,304	225,268	212	141	39.8	24
1933	2,042	324,278	392,298	21,656	10,517	65.8	551,724	190,787	226	133	37.0	53
Great Lakes Region:												
Delaware & Hudson.....1934	848	213,807	286,551	31,735	7,077	61.8	443,894	203,026	243	32	11.7	140
1933	848	178,157	234,648	25,120	5,761	61.7	346,913	148,054	252	27	9.8	170
Del., Lack. & Western.....1934	992	374,395	415,714	52,763	11,703	63.5	699,552	269,836	176	78	30.7	25
1933	998	319,366	353,277	40,881	10,298	64.2	580,443	208,757	203	65	24.3	68
Erie (incl. Chi. & Erie)....1934	2,315	693,061	732,345	58,224	29,039	61.7	1,802,345	670,606	302	188	38.4	65
1933	2,316	614,132	638,410	45,822	24,762	61.4	1,526,103	531,116	305	199	39.4	98
Grand Trunk Western.....1934	1,007	237,242	239,727	1,883	5,811	57.6	364,294	114,473	71	81	53.2	..
1933	1,003	198,241	199,653	1,697	4,936	58.9	298,739	94,948	77	74	48.8	11
Lehigh Valley.....1934	1,335	408,495	430,539	41,313	12,660	63.8	779,201	311,085	182	134	42.4	10
1933	1,341	342,519	356,457	28,656	10,359	62.8	612,986	224,955	170	149	46.8	30
Michigan Central.....1934	1,967	426,010	426,624	16,537	14,026	57.7	839,263	247,389	138	44	24.4	27
1933	1,962	365,371	365,632	10,513	11,365	58.9	671,168	206,167	134	67	33.2	44
New York Central.....1934	6,418	1,476,041	1,571,419	110,380	52,796	59.6	3,359,807	1,360,262	595	480	44.7	62
1933	6,428	1,270,206	1,361,300	87,014	48,221	60.1	2,946,125	1,136,992	551	635	53.5	71
New York, Chi. & St. L.....1934	1,661	495,205	499,455	4,395	15,023	60.5	896,393	302,765	122	51	29.5	18
1933	1,660	451,367	476,034	4,829	13,391	59.4	801,843	267,107	114	99	46.3	15
Pere Marquette.....1934	2,196	346,389	354,538	2,827	8,291	57.4	537,048	192,711	111	42	27.8	11
1933	2,254	308,620	323,131	4,114	7,044	57.0	458,604	163,824	120	54	30.9	23
Pitts. & Lake Erie.....1934	234	70,573	72,236	..	2,890	57.5	248,499	137,043	32	40	55.1	7
1933	231	56,543	58,316	830	2,258	56.1	195,518	105,493	27	44	61.5	6
Wabash1934	2,445	552,962	561,819	11,651	16,769	59.4	1,013,866	310,144	160	178	52.8	38
1933	2,453	492,162	497,706	10,128	14,740	61.6	845,617	254,382	171	171	50.1	25
Central Eastern Region:												
Baltimore & Ohio.....1934	6,263	1,352,405	1,623,450	181,171	40,004	61.7	2,694,393	1,193,651	728	585	44.6	118
1933	6,283	1,161,214	1,409,226	149,650	34,483	60.9	2,270,375	965,914	716	590	45.2	182
Big Four Lines.....1934	2,655	558,829	575,324	21,397	15,814	59.7	990,916	403,069	191	150	44.0	31
1933	2,660	528,106	551,457	17,431	15,228	61.4	933,087	378,170	256	155	37.7	51
Central of New Jersey.....1934	690	141,350	157,804	29,993	4,595	57.3	319,600	147,042	81	91	53.0	21
1933	692	123,899	138,655	22,844	3,932	57.7	263,435	115,920	116	62	34.9	64
Chicago & Eastern Ill.1934	939	166,318	167,288	2,783	3,594	61.2	228,001	90,803	53	116	68.5	9
1933	939	169,792	170,595	2,539	3,158	60.9	195,371	73,603	62	103	62.2	23
Elgin, Joliet & Eastern.....1934	446	83,810	85,946	1,112	2,026	59.7	156,345	76,761	64	25	28.3	11
1933	446	74,060	74,719	1,072	1,791	58.7	139,824	66,021	73	15	16.7	28
Long Island.....1934	396	29,777	30,575	14,257	288	52.2	21,844	8,721	30	26	46.3	..
1933	396	28,669	29,386	12,010	303	54.4	21,979	8,581	29	18	38.9	3
Pennsylvania System.....1934	10,088	2,639,392	2,935,183	314,290	90,351	60.9	6,100,086	2,640,160	1,394	1,010	42.0	309
1933	10,525	2,392,703	2,661,094	269,903	82,804	61.6	5,377,139	2,243,855	1,573	919	36.9	556
Reading1934	1,454	407,966	444,101	50,422	11,386	58.6	830,113	383,437	258	124	32.5	72
1933	1,454	351,839	380,192	40,807	9,606	59.7	675,436	306,798	282	101	26.4	117
Pocahontas Region:												
Chesapeake & Ohio.....1934	3,135	824,920	867,079	33,720	35,126	54.7	3,017,824	1,609,611	449	96	17.6	129
1933	3,140	725,724	761,304	30,314	30,708	54.8	2,596,884	1,374,022	528	165	23.8	254
Norfolk & Western.....1934	2,164	590,039	614,067	27,038	23,551	57.8	1,975,581	1,039,609	410	54	11.6	176
1933	2,204	507,672	524,585	20,592	18,651	59.9	1,485,207	764,863	421	60	12.5	211
Southern Region:												
Atlantic Coast Line.....1934	5,145	606,747	608,953	7,767	11,462	58.2	640,204	208,474	330	135	29.1	69
1933	5,144	600,974	602,597	8,389	12,123	63.0	619,533	197,398	360	125	25.7	101
Central of Georgia.....1934	1,886	207,004	208,508	3,728	4,243	67.3	233,546	87,468	96	43	31.2	..
1933	1,904	196,960	197,758	2,846	4,453	69.4	232,739	85,100	86	53	38.3	..
Illinois Central (incl. Y. & M. V.).....1934	6,617	1,469,051	1,492,108	26,977	32,063	59.4	2,020,256	745,449	576	350	37.8	9
1933	6,643	1,266,141	1,288,002	21,479	28,539	60.1	1,789,045	668,054	605	340	36.0	25
Louisville & Nashville.....1934	5,062	1,043,506	1,118,304	26,465	22,604	58.4	1,555,956	689,987	326	293	47.3	15
1933	5,121	897,728	953,757	21,673	19,196	58.8	1,280,641	552,358	346	350	50.3	60
Seaboard Air Line.....1934	4,296	492,373	509,809	2,616	11,858	64.3	686,865	247,022	209	75	26.4	5
1933	4,373	455,014	471,748	3,147	10,540	65.0	590,316	203,989	232	63	21.4	37
Southern1934	6,599	1,129,418	1,145,300	17,175	24,615	64.7	1,364,913	502,857	614	294	32.4	107
1933	6,602	1,064,005	1,077,055	18,642	24,902	65.8	1,339,346	482,776	726	197	21.4	227
Northwestern Region:												
Chi. & North Western.....1934	8,443	939,987	980,445	20,533	23,310	62.4	1,402,792	477,910	559	242	30.1	132
1933	8,443	855,140	896,364	19,916	21,742	61.7	1,305,802	434,841	580	240	29.2	216
Chicago Great Western.....1934	1,463	205,777	206,966	16,817	6,539	59.6	400,121	134,390	62	37	37.8	2
1933	1,463	196,257	197,666	18,299	5,990	59.1	372,425	127,193	60	39	38.9	3
Chi., Milw., St. P. & Pac.1934	11,157	1,114,543	1,177,532	54,653	28,899	60.5	1,784,493	670,358	541	344	38.9	193
1933	11,234	1,109,115	1,166,572	53,855	28,785	59.5	1,843,569	723,681	691	203	22.7	338
Chi., St. P., Minneap. & Om.1934	1,653	198,383	206,236	8,954	4,093	64.0	244,410	95,314	119	34	22.2	56
1933	1,681	199,227	206,538	8,293	4,086	66.6	243,162	99,266	135	38	21.9	71
Great Northern.....1934	8,335	618,874	623,451	19,504	20,532	65.8	1,304,874	602,528	424	170	28.7	106
1933	8,424	528,900	533,293	15,229	16,310	69.7	968,757	438,760	465	147	24.0	165
Minneap., St. P. & S. St.1934	4,281	343,023	347,330	2,856	7,564	65.1	435,985	181,344	118	42	26.0	3
1933	4,291	323,331	326,568	1,870	6,816	66.5	385,283	160,557	138	41	22.7	13
Northern Pacific.....1934	6,416	522,025	563,609	37,091	15,872	68.2	910,125	372,200	346	167	32.6	54
1933	6,410	458,210	487,357	31,787	14,306	68.0	823,721	347,860	393	131	25.0	111
Oreg.-Wash. R. R. & Nav.1934	2,109	142,844	148,400	8,721	3,553,							

1934, Compared with May, 1933, for Roads with Annual Operating Revenues Above \$25,000,000

Region, road and year	Average number of freight cars on line			Per cent un-service-able	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Loco-motive-miles per locomotive-day
	Home	Foreign	Total										
New England Region:													
Boston & Albany.....1934	2,960	3,605	6,565	23.5	22,386	1,342	430	16.7	273	24.7	4,461	146	45.5
.....1933	4,533	3,150	7,683	38.9	22,825	1,434	459	16.1	216	19.8	4,128	158	39.0
Boston & Maine.....1934	9,484	7,564	17,048	13.7	26,780	1,950	730	20.1	369	26.7	3,112	101	39.1
.....1933	9,205	7,547	16,752	15.0	24,691	1,785	637	18.0	299	23.9	2,433	101	33.7
N. Y., New H. & Hartf.1934	14,906	10,868	25,774	12.3	25,886	1,727	622	19.7	282	22.2	3,555	105	41.9
.....1933	16,384	9,210	25,594	10.3	25,846	1,701	588	18.1	240	20.1	3,013	103	37.2
Great Lakes Region:													
Delaware & Hudson.....1934	11,260	2,879	14,139	4.4	27,962	2,076	950	28.7	463	26.1	7,721	109	37.3
.....1933	12,629	2,138	14,767	3.9	24,822	1,947	831	25.7	323	20.4	5,631	114	30.0
Del., Lack. & Western....1934	16,375	4,968	21,343	11.9	28,617	1,868	721	23.1	408	27.8	8,776	139	59.6
.....1933	18,856	3,598	22,454	11.4	27,426	1,817	654	20.3	300	23.0	6,747	127	47.5
Erie (incl. Chi. & Erie)....1934	26,697	12,732	39,429	6.0	41,549	2,601	968	23.1	549	38.5	9,343	94	52.0
.....1933	35,075	10,472	45,547	5.9	39,641	2,485	897	22.3	390	28.6	7,676	95	43.8
Grand Trunk Western....1934	4,729	8,562	13,291	15.0	30,406	1,536	483	19.7	278	24.5	3,668	101	51.5
.....1933	5,390	7,027	12,417	20.5	27,956	1,507	479	19.2	247	21.8	3,054	99	43.2
Lehigh Valley.....1934	17,964	6,589	24,553	19.6	33,534	1,907	762	24.6	409	26.1	7,518	128	48.2
.....1933	19,095	3,822	22,917	22.7	31,563	1,790	657	21.7	317	23.2	5,412	132	38.9
Michigan Central.....1934	20,163	20,414	40,577	13.6	37,062	1,970	581	17.6	197	19.3	4,057	102	78.5
.....1933	26,521	16,960	43,481	11.2	34,255	1,837	564	18.1	153	14.3	3,390	112	60.5
New York Central.....1934	55,651	59,061	114,712	23.0	37,700	2,276	922	25.8	383	24.9	6,837	97	50.5
.....1933	80,427	56,940	137,367	26.5	36,911	2,319	895	23.6	267	18.8	5,706	94	39.4
New York, Chi. & St. L.1934	8,577	6,331	14,908	4.6	34,089	1,810	611	20.2	655	53.7	5,881	94	93.7
.....1933	11,611	5,919	17,530	8.0	32,446	1,776	592	19.9	492	41.5	5,190	98	72.7
Pere Marquette.....1934	11,339	5,131	16,470	3.1	26,231	1,550	556	23.2	377	28.3	2,830	91	75.2
.....1933	12,898	3,824	16,722	2.8	24,983	1,486	531	23.3	316	23.8	2,344	91	60.8
Pitts. & Lake Erie.....1934	17,014	11,007	28,021	32.2	49,859	3,521	1,942	47.4	158	5.8	18,918	97	32.6
.....1933	17,614	7,920	25,534	31.5	47,945	3,458	1,866	46.7	133	5.1	14,719	98	26.8
Wabash1934	13,702	8,762	22,464	3.8	37,581	1,834	561	18.5	445	40.5	4,092	105	54.8
.....1933	17,452	7,309	24,761	5.0	35,424	1,718	517	17.3	331	31.2	3,345	107	47.9
Central Eastern Region:													
Baltimore & Ohio.....1934	81,680	19,926	101,606	17.9	26,549	1,992	883	29.8	379	20.7	6,148	146	44.3
.....1933	95,419	16,151	111,570	19.5	25,936	1,955	832	28.0	279	16.4	4,960	143	38.5
Big Four Lines.....1934	17,886	22,932	40,818	12.4	32,084	1,773	721	25.5	319	20.9	4,898	114	56.4
.....1933	20,220	18,730	38,950	20.2	31,317	1,767	716	24.8	313	20.5	4,586	116	44.7
Central of New Jersey....1934	16,197	7,218	23,415	34.1	27,554	2,261	1,040	32.0	203	11.0	6,875	144	35.2
.....1933	18,003	5,270	23,273	27.9	25,716	2,126	936	29.5	161	9.5	5,404	129	29.3
Chicago & Eastern Ill.1934	5,939	2,269	8,208	25.9	24,910	1,371	546	25.3	357	23.1	3,120	122	32.5
.....1933	6,185	1,902	8,087	18.7	21,144	1,151	433	23.3	294	20.7	2,529	136	33.8
Elgin, Joliet & Eastern....1934	8,529	4,556	13,085	20.6	17,750	1,865	916	37.9	189	8.4	5,551	113	31.6
.....1933	9,702	3,673	13,375	23.9	16,711	1,888	891	36.9	159	7.4	4,775	120	27.8
Long Island.....1934	778	3,337	4,115	2.0	5,925	734	293	30.3	68	4.3	710	296	26.1
.....1933	796	3,302	4,098	1.9	6,129	767	299	28.3	68	4.4	699	265	28.4
Pennsylvania System.....1934	245,796	47,431	293,227	12.5	33,550	2,311	1,000	29.2	290	16.3	8,443	117	43.6
.....1933	254,035	42,526	296,561	10.3	31,968	2,247	938	27.1	244	14.6	6,877	120	37.9
Reading1934	34,850	7,816	42,666	13.9	24,859	2,035	940	33.7	290	14.8	8,509	148	41.8
.....1933	39,432	6,654	46,086	21.3	23,160	1,920	872	31.9	215	11.4	6,807	144	35.4
Peachontas Region:													
Chesapeake & Ohio.....1934	43,049	11,549	54,598	1.7	51,691	3,658	1,951	45.8	951	37.9	16,565	71	53.3
.....1933	47,799	9,524	57,323	1.8	50,578	3,578	1,893	44.7	773	31.5	14,118	72	36.9
Norfolk & Western.....1934	35,520	4,474	39,994	3.8	49,465	3,348	1,762	44.1	839	32.9	15,497	98	44.5
.....1933	40,726	4,164	44,890	3.4	43,786	2,926	1,507	41.0	550	22.4	11,194	108	36.6
Southern Region:													
Atlantic Coast Line.....1934	26,438	5,647	32,085	24.6	18,954	1,055	344	18.2	210	19.8	1,307	122	42.7
.....1933	27,756	6,166	33,922	23.1	19,602	1,031	328	16.3	188	18.3	1,238	115	40.7
Central of Georgia.....1934	7,294	2,005	9,299	25.0	20,413	1,128	423	20.6	303	21.8	1,496	129	49.3
.....1933	7,335	1,856	9,191	25.8	21,093	1,182	432	19.1	299	22.5	1,442	125	46.6
Illinois Central (incl. Y. & M. V.).....1934	53,176	13,768	66,944	39.6	24,835	1,375	507	23.2	359	26.0	3,634	132	52.9
.....1933	54,885	12,474	67,359	28.1	24,681	1,413	528	23.4	320	22.7	3,244	135	44.7
Louisville & Nashville....1934	48,587	8,635	57,222	30.4	23,276	1,491	661	30.5	389	21.8	4,397	132	59.6
.....1933	55,007	7,244	62,251	24.0	21,400	1,427	615	28.8	286	16.9	3,479	139	45.3
Seaboard Air Line.....1934	11,727	5,128	16,855	6.4	22,872	1,395	502	20.8	473	35.3	1,855	114	58.3
.....1933	12,833	4,399	17,232	7.4	21,280	1,297	448	19.4	382	30.3	1,505	121	52.0
Southern1934	32,122	13,520	45,642	17.8	20,566	1,209	445	20.4	355	26.9	2,458	150	41.3
.....1933	32,178	17,378	49,556	19.3	20,935	1,259	454	19.4	314	24.6	2,359	141	38.3
Northwestern Region:													
Chi. & North Western....1934	43,069	17,435	60,504	11.7	23,518	1,492	508	20.5	255	19.9	1,826	122	40.3
.....1933	45,358	16,339	61,697	10.4	23,122	1,527	509	20.0	227	18.4	1,661	121	36.1
Chicago Great Western....1934	2,186	2,551	4,737	2.3	35,563	1,944	653	20.6	915	74.7	2,963	123	73.1
.....1933	4,197	2,499	6,696	13.3	33,160	1,898	648	21.2	613	48.9	2,804	130	70.5
Chi., Milw., St. P. & Pac. 1934	56,509	14,426	70,935	5.4	25,112	1,601	601	23.2	305	21.7	1,938	116	44.9
.....1933	59,565	13,534	73,099	4.2	25,291	1,662	652	25.1	319	21.3	2,078	116	44.0
Chi., St. P., Minneap. & Om.1934	2,191	6,837	9,028	11.0	18,255	1,232	480	23.3	341	22.9	1,860	110	45.4
.....1933	2,246	6,135	8,381	10.1	17,677	1,221	498	24.3	382	23.6	1,905	105	40.1
Great Northern.....1934	42,180	8,818	50,998	9.4	31,219	2,108	974	29.3	381	19.7	2,332	109	34.9
.....1933	44,005	7,627	51,632	7.0	27,672	1,832	830	26.9	274	14.6	1,680	118	28.9
Minneap., St. P. & S. St. 1934	16,232	3,129	19,361	5.0	20,267	1,271	529	24.0	302	19.4	1,367	99	70.6
.....1933	19,242	2,512	21,754	4.2	18,772	1,192	497	23.6	239	15.2	1,207	103	59.2
Northern Pacific.....1934	40,140	3,954	44,094	13.5	26,877	1,743	713	23.5	272	17.0	1,871	150	37.7
.....1933	43,302	3,539	46,841	11.6	27,902	1,798	759	24.3	240</				

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